The
Public Health Journal

The Official Organ of The Canadian Public Health Association.

VOL. IV TORONTO, CANADA, MAY, 1913 No. 5

Special Articles

THE VALUE OF PLAYGROUNDS TO THE COMMUNITY

By Mr. Jacob A. Riis.

At the last regular luncheon of the Canadian Club, for the season of 1912-13, held on the 21st April, Mr. Jacob A. Riis said:

Mr. Chairman, Your Grace, friends and neighbors across the line,—They say that a man and a people live in their ideals. If I should apply that to myself, I must begin very far back. For my own ideal, and that of the friend here on the right who has been telling me of your housing movement in Toronto, is the man in the garden. I suppose that exception goes back to the Garden of Eden. We take it for granted that if a man is planted in a garden on his own plot of soil he cannot go far away from what is right. As a theory that is all right; in practice the ideal has been knocked on the head several times in my own home, for one thing, in the case of Philadelphia, which is a city of homes, yet for years held the evil reputation of being the worst governed city in the land. But the hardest blow it received on this side of the line, and I will risk telling you how, I used to come, with a couple of friends, to spend part of the summer in your beautiful and wonderful wilderness of the north. We came year after year, and we enjoyed ourselves tremendously. We always had the same old man for our cook and his son for guide. The old man—I will call him Donald,—that is not his name, but I want to save his feelings, was a Scotch Presbyterian, of the most uncompromising kind. He would discuss infant damnation and foreordination and the other grim old doctrines in the way that was distinctly good and wholesome for us. I gloried in that man and his splendid piety. Alec was just a scallawag of the frontier, with no principles to speak of. One day Alec and I were fishing, and he fell to telling me how the votes in the little hamlet on the edge of the wilderness in which they lived were all bought by one party or the other, I never knew which. It seemed to me a ridiculous and scandalous waste of money, to buy all the votes, when a little more than one-half would have done! (Laughter.) And I said to Alec, "Aren't you drawing the long bow?" "Oh, I guess not," he replied. "I ought to know, I held the bag." "Does it occur to you," I asked, "that when you said you were buying all the votes you implied that you were buying your own father's too?" "Why not?" he said,

"shouldn't he have his two dollars the same as the rest?" (Laughter.)

I said no more, but when I saw the old man that evening, I took him to task. Donald was much annoyed, shrugged one shoulder, then the other, and said, "Those young fellows' tongues are too long! They talk too much." "That is not the point," said I, "did you or did you not take the two dollars?" He looked at me as if lost. "Why, yes," said he, "the money was there, I might as well have it as the rest of them." And then he saw something in my face, and reassured me: "But that is all right, Mr. Riis. I took the money, but I voted for the other man!" (Laughter.) And I thought of the definition given by Matt Quay, chief of corruptionists, of an honest man, as "one who would stay bought!" (Laughter.) Ever since I have stood in awe of the Presbyterian conscience.

But if the man in the garden proved a delusion, it must be because we didn't begin far enough back. Hence we have taken our stand with the boy in the playground. That is solid ground! (Applause.) And I think I shall prove it.

It was not always so. It is not more than thirteen or fourteen years since I went before the Board of Education of my city, begging them to open one playground at least for the boys, to take them off the street after school hours. When, after half an hour's plea, I had finished, they thanked me and said they were glad I had taken all that trouble, "but you have not told us where there is anything educational in all this. (Laughter.) If you can show us that, perhaps we will do it." That was at the outside fifteen years ago! Last week, or the week before last, I met Dr. Maxwell, the Superintendent of our schools, and asked him, "How many school playgrounds did you maintain last year in connection with the schools, not in school hours but in the long vacation." "Two hundred and twenty-two," he said. (Applause.) And he might have added, "In another five years we shall have four hundred and forty-four, in all probability!" and not have been far out of the way.

And while we have done that, two great sovereign States, Massachusetts on the Atlantic seaboard and Washington on the Pacific, have passed laws requiring cities of ten thousand inhabitants or over to maintain playgrounds at the public expense. That law was referred by Massachusetts to the people themselves to confirm, and there was something to me of grim humor in the fact, when last year I was campaigning in that State, and saw the dread sane good people had of the referendum. They had themselves wielded that power a little while before to the great and lasting advantage of the commonwealth. And now we have come to the pass where at a playground congress the cry was raised: "Rather a playground without a school than a school without a playground!" That time the pendulum swung too far, as it is apt to do. We want them both and so hitched together as to do the boy and us all good.

Now, what does all this mean? It means that we are at last aware of the fact that the boy is father of the man, of the citizen of to-morrow, and that there is no shorter way that you can possibly take to the corruption of that citizen than to deny the boy his childhood. For, friends, you can't make a whole man out of a half a boy! (Applause.) No boy is ever more than half a boy who has not had his chance to toss a ball across the lot unchallenged. There is an unsuspected connection between lack of play in young years, child labor, and trampery. It is a surprise to many people, yet it is perfectly natural. Take a boy, and jam him into a factory,—at thirty you have a spent man! "The boy without a playground is the father of the man without a job." Force him into a shop in his young years, when he should be out at play, and he will be the father of the man who doesn't want a job!

Seventy-five years ago, Friedrick Froebel, of whom you all know, but of whom the Board of Education of my city did not know fifteen years ago, laid down as the foundation pillars of his system of common sense education, whether of rich or poor two rules: one, that play is the normal occupation of the child, through which he gets his first grip on moral relations—that is: grows character—what in all the world could be more "educational" than that which gives the image of God in him a chance to grow into manhood? (Hear, hear.) The other is that you learn by doing and not much in any other way.

What does the boy learn whose playground is always set between two gutters; and whose only game is getting arrested?" Take your own city. A man who is here to-day told me of a boy who came to this city from Scotland, where he had lived in a village, and in a few weeks appeared in the Juvenile Court charged with mischief, smashing street lamps and windows. They found out that he lived in a dark cellar that palled on the boy who was used to outdoor life, had lived in the hills; so he took to the street, and of course he got into trouble with the police. Unconsciously that gentleman told me the whole story of the slum and the hoodlum. He was sent up to the Industrial School for three years. I hope your Industrial School is better than some I know of, for otherwise you may have done yourselves and that lad an irreparable injury. (Hear, hear.)

He goes to play in the street; he does not mean to break lamps and windows, but a ball has ways of its own, and damage is done. Naturally the storekeeper kicks, and the policeman is not to blame; he has his orders. What those orders ground in, you may understand when I tell you that I happened across the figures of street traffic accidents in New York City for the year before last: between two and three hundred persons were killed, and between ten and eleven thousand maimed. So there is good cause to deny him that playground. But the boy does not know it. He breaks a window, is chased by a policeman, and he runs. His little legs can go faster than the policeman's and he gets away. And while he runs with his heart hammering up under his shirt, he swells with pride at having beaten the policeman. That is the beginning of outlawry. The policeman chased him over the line.

Forty years ago the Earl of Meath, on the other side of the sea, who has thrown much light on this question of juvenile delinquency, pointed out that crime in our large cities is to the greatest extent simply a question of athletics, or giving the boy a chance. What is a boy anyway but a little steam boiler, with steam always up! (Laughter.) I pity the boy who is not built that way, who has not the steam boiling and bubbling in him! The boy has a safety valve; it is his play. You can sit on the safety valve of a boiler with steam up if you want to, but you are an awful fool if you do! Something is bound to happen! And what else have we done in our large cities? We see signs, "Keep off the grass!" The grass is aered in our cities, but the boy is not! He can go to the devil if he chooses, and he has been going there, hot-foot.

We had a small Parks Commisioner in our city, and I was the secretary. I was a police reporter at that time in New York, and I stood at the wicket gate where the whole procession of rapscallions passed through. I had a map drawn of the city, and where the worst gangs were which made trouble I stuck pins. We called in the police captains of those districts, and asked them how they accounted for the lawlessness there and what made the trouble. As one man their answer was, "The boys haven't a chance to play!"

There were the tenements with the biggest crowds, that means with the largest number of boys. Also, they were the newest tenements. Within my own recollection there had been vacant lots. Don't I still hear that objection, "What is the use of playgrounds? We have vacant lots?" But the city grows, and the lots are built upon, until there is not one left. And as these playgrounds are narrowed there is more peril to windows, and the trouble with the policeman begins, and the trouble with the storekeepers. The boys feel that they have been imposed upon. The Constitution of my country says that every man is entitled to "life, liberty, and the pursuit of happiness." The boy's play is his happiness. It is in these neighborhoods the trouble begins. When we tore down blocks of tenements and made playgrounds, the "gang" disappeared. Those playgrounds cost us a million dollars a block of three acres. One thing we have learned is that it is cheaper,—and I give this advice to you for what it is worth,—it is much cheaper to make playgrounds when the ground costs a thousand dollars than to wait till it costs a million. (Hear, hear, and applause.) We not only paid a million dollars for playgrounds when we pulled down the tenements, but we also took a million dollars' worth of property off the tax books, so that it hurt both ways. And still it was cheap.

The "gang" is the outcrop of the fact that there are no playgrounds. In Chicago, whenever they put down playgrounds in a disorderly neighborhood, twenty-five to thirty per cent. of the juvenile delinquency of that neighborhood ceased! The President of the Board of Police Commissioners of St. Louis wrote this very pregnant sentence: "Ninety per cent. of habitual criminals start their career before they are ten years of age." That is the whole story in a nutshell! Speaking out of my own experience as a police reporter, I would say the same. The pregnant hours of a boy's day are between seven and nine o'clock in the evening; between supper and bedtime. If you know where your boy is then, and what he is doing, you have got your boy; if you do not, look out!

That, in brief, is the story of the playgrounds, which we have learned in our big city. Of course, we needed to learn it more than any other city in the world, for we have the biggest crowding, and in an "environment that made all for unrighteousness and tended to corrupt the young," the Tenement House Commissioner said that indictment woke us up, and since then we have been paying for our past neglect, paying hard and high! Now we have learned that lesson. See what has come in the track of it: the war on child labor, juvenile courts, probation officers, "Big Brothers"—the biggest and best part of the probation officer movement! and what are all these but plain justice to the community?

Other things have come, are coming. Ten or a dozen years ago I used to come across the despairing wail that "the cities are the peril and the scandal of our democracy." An author whose book I came across the other day piped a new note: "the cities are the hope of our democracy," he wrote, and the man was right. We have turned the corner as to that. (Applause.)

Look at our new way of dealing with our school houses. We are using them not only as civic centres, but as social and political centres as well. Last year I spoke in more than one big beautiful schoolhouse in the Bull Moose campaign, if you please. Ten years ago when I proposed that, I was called a hopeless crank. To-day we are actually rediscovering the lost neighbor. They used to wail that the town-meeting, that was the simplest and most direct expression of our democracy, was gone. Yes, it went, for it could no more exist in our day of city crowding than the old-fashioned mechanic in our age of steam industry. But while the schoolhouses become social centres, with neighbor meeting neighbor in their own house for the discussion of public problems, the old town meeting has come back in a way that fits into our city civilization as the old one did not, and could not. So that grief is gone.

The need of playgrounds is everywhere realized. The Vice Commissions point out that the young seek bad pleasures very largely because good ones are denied them. Of course the city fathers are slow to provide these, because they are the guardians of public funds; but they will learn that it is cheaper to pay $1,000 than $1,000,000. Only absolute ignorance protests. Last summer I was surprised to find a man rise up and protest against this "interference with the rights of the boys," as he put it, "to sow a few wild oats." His objection was not only to the playgrounds, but to the juvenile court and to the probation officer. He said: "First thing we know, we shall have these probation officers gathering in the children because they fail to attend school!" (Laughter.) That would interfere, he thought, with the inalienable rights of poor children! That is only one of the shadows that throw the lights of the picture into greater relief.

Apropos of schools, let me give you a point. When we could not buy ground space for play, we put the playgrounds on the roof, four storeys up, and invited the children in. And they came. We were busy with many things and assumed as a matter of course that they were hard at play up there, when one day there comes before the Board of Education a petition from the janitors of all the schools which had roof playgrounds, asking the Board to discontinue them because "they were not much used!" That was a very astonishing thing, and I said to the President of the Board of Education, "Let us go to-night and see what this means." We went to one of the schools and found hun-

dreds of children swarming in front of it. They came up to us, pleading, "Won't you take me in?" "Sure! Come right in!" we said. But as we approached the door they began to hang back. Suddenly out from the doorway rushed a man with a big stick,—"B-r-r-r-r!"

We asked him what that meant, and he said it was the janitor's orders. The President held a court martial right there, and we found that the janitor, not desiring to clean up after so many little feet, had placed his assistant at the door, with orders to hit the children on the head with a stick when they tried to get in. So he was enabled to report after a while that "the playgrounds were not much used."

As a result of that night's work, the Board ordered the stringing of electric lights on the roof, and there in the long summer evenings there comes a band to play to the children, and if you saw them, three or four thousand of them, dancing to the tune of "Money Musk" or "Way Down Yonder in the Cornfield"—(applause)—you would think the millennium had come. And so it has. My post is: "don't forget to enlist the janitor."

We spend a fortune for music and play, hundreds of thousands of dollars, and it is well spent. In Chicago they provided 27,000 plates of ice cream for the school playgrounds, at five cents a plate. When I think of what that means, I feel that life is really worth living.

I talked of supervision. One word more: When you achieve your playgrounds, friends, make up your minds that they are not going to be cheap. The cost of the ground is by no means all there is to it. Face that boldly. You have to have supervision. Not enough to spoil it. The instinct of the pedagogue insists on classifying, and organizing the play into team play and group play, and heaven knows what, and to what grave scholastic ends; to fill it full of views and aims until the boy won't know it for his own. Let him alone. Let him kick up his heels and run in the sunshine like a young colt. If he comes home bringing back a bruised nose and a black eye, all right!—a black eye may be a prime moral agent! But let the play be guided and overseen; let there be a mature intelligence behind it, that helps the child to his needs. Don't put a policeman in charge! (Laughter.) That is bad. To put nobody in charge is worse.

Then, when you have done all this, be sure that it will repay you a thousand times in the days coming, in good citizenship. Don't you know, that at a certain age every boy in the world is on the fence, and doesn't know which way to jump? When my boy was six years old I used to see this little man slyly feeling of his muscles, and one day he had got hold of a household ammonia bottle and torn off part of the label. When I passed his room I found he had pasted on his chamber door "William Riis, VERY STRONG!" (Laughter.) That lad was coming into his rights. One day he said to his beloved mother, "Mamma, would you be very mad if I should be a burglar when I grow up?" "A burglar," she exclaimed, "Why, Billy! and be arrested! why, the police would get you!" He thought soberly a minute, then said, "Well, then I will be a sailor?" And his mother pleaded with him not to leave her for the dark and cruel sea. "Well," he said, "what shall I be then? A boy can't always be nothing at all!" She put in her plea for the ministry. She would so like him to be a little minister. (Laughter.) The Archbishop will forgive me for this reference, I am sure, he was such a little boy—well! he didn't like it a bit. His face was like a thunder cloud; but at last he surrendered. "All right!," he said, "If I can't be a burglar, and you won't let me be a sailor, then I will be a minister, when Mr. Evans goes away!" Mr. Evans is our rector, and every time I feel he needs chastening, I tell him that story, how my boy took to the ministry as third choice! (Laughter.)

The point I want to make is: this lad was on the fence; every boy of his age is on the fence, if he is the kind of boy that is worth his salt! (Hear, hear.) Now, our function is, to help him get off on the right side of the fence! (Applause.) And the very best way of doing that is to give him the play he needs and hankers and yearns for! (Long applause.)

SCHOOL CLINICS*

By L. HADEN GUEST, M.R.C.S., L.R.C.P.

School Doctor, London County Council; Medical Superintendent, St. George's Dispensary and School Clinic, Blackfriars, London.

The Act of Parliament making medical inspection compulsory has now been in operation in Great Britain for about four years, and already the pressure in the direction of following up the school inspection by school treatment, is becoming very great indeed. Medical treatment by means of special agencies under the control of the Education Authorities is allowed under the Act of 1907, but is not compulsory, and in practice such agencies, called School Treatment Centres or School Clinics, have been set up in many towns. And where they have not been set up the statistics of the number of children with defective teeth, with nose, ear and throat defects needing treatment, with defective vision, and with numerous other classes of deficiencies, constantly clamor for attention. Speaking for Great Britain as a whole, it is certain that nowhere, outside of specially created school treatment centres, is it possible to get full and satisfactory treatment for all the defects found on inspection. And this is so not only because agencies for the treatment of certain defects of school children do not exist, but because the social circumstances of many children prevent them and their parents making use, even to the extent otherwise possible, of any existing agencies.

From the point of view of treatment, I have found it necessary to divide children into two groups.

(1) That of children with medical defects, but of average or good social circumstances, and (2) that of children with medical defects, whose circumstances are bad or below average. We may call these two groups the Medical Group and the Poverty Group.

And these groups are found existing not only in towns, but in country districts. From the Poverty Group comes the constant reinfection with pediculi; from them, probably, school epidemics preponderantly spring, and among them occur the greater number of the cases of malnutrition; of general neglect, and of failure to get directions for treatment, indicated at medical inspection, carried out. An exact estimate is difficult, and I do not pretend to more than guess at the figure when I suggest 10 per cent. as a low value for the proportion of the Poverty Group among the school population. But this figure has been found indicated approximately both in town and country districts.

This division into two groups is important because the purely medical cases can get cured comparatively easily, the poverty cases only with difficulty. To treat a child with obstructed breathing and adenoids who is otherwise fairly sound, and who comes from a decent home, is simple, and cure is probable. The parents of such a child will take trouble to see that the defect is remedied when it is pointed out to them. The decent home and the child's fairly sound condition are an indication that the parents have the desire and probably the time to see that proper treatment is applied. In very large towns, and accessible for most small towns and villages, there are hospitals and dispensaries supplying facilities for treatment, which can be taken advantage of by those having the desire and the time to do so. On the whole, the great bulk of children presenting medical defects pure and simple will have those defects attended to by existing institutions when the parents become aware of what is needed, although this does not apply to dental defects. In this respect medical inspection puts the child of the poor man on a level with the child of the rich man, by giving him an expert opinion on what should be done to put the child in the fittest possible condition. Medical inspection does a great work if it makes knowledge available to the parents of all children.

In the case of children presenting medical defects plus poverty, the case is different. To begin with, such children often present not one or two but a group of defects, and complicated and continuous

*Journal of State Medicine

treatment may be required. The general condition of such children is not good, and the children do not give good results from treatment. Discharging ears in a badly-nourished poor child, for instance, take longer to get well than in a decently-nourished average child. But, worst of all, the parents of such poor children do not take them for medical treatment. Sometimes the parents will not take them —these, I think, are the rarer cases—sometimes the parents do not think medical treatment necessary; these are commoner cases. Sometimes the parents cannot spare time to get the children treated. This last class is as large as either of the two others, and may in certain localities be larger. In the first group come the children from drunken and vicious homes, in the second from feckless homes, in the third from overworked and underworked homes. We might call them the vicious, the shiftless, and the poor homes.

The remedy for these conditions lies outside the scope of school organization, but the recognition of the existence of these conditons is very much a matter for school authorities. For the plain A, B, C, of the facts is this, that it is no use treating defects of nose and throat, eye and ear, unless you treat the underlying debility of constitution produced by the home conditions. That means remedial school feeding firstly, and open-air schools, school baths and gymnasia among other things as secondary methods. This state of things means also a new organization for getting the children treated.

It may, in theory, be highly desirable to "insist" on the parents getting remedied the defects pointed out to them by medical inspection. In practice the parents will either not do so, or only pretend to do so, for in the matter of getting treatment it is fatally easy to pretend. If the poverty group children are to have their illnesses and ailments remedied, they will have to be (a) fed on a diet designed to improve their physique, and (b) sent to hospital or school clinic in charge of someone from the school by the authority of the school.

The home conditions of such children also need tackling; the necessity of open windows and soap and water need pointing out, and all kinds of complicated little details need discussing with the parents. These are the duties of the Care Committee, but if they are to be effectively carried out, if remedial feeding is to become a reality instead of a pretence, and if medical defects are to be cured, there is only one effective way of doing these things—all of these activities must centre round a school clinic. And the school clinic, the school doctors, and the school nurses must be as much a part of the school organization as the school teachers.

The average children in Council schools (who are nevertheless below the standard of their own possibilities), and the children with medical defects only, may be put aside for the moment; the children with defects, plus poverty, are an urgent problem demanding instant attention.

Children belonging to the poverty group, as already defined, are the children sprung from the morass of destitution which quakes and shivers around the foundations of our civilization. These children come from definitely localized neighborhoods, from particular streets, and from special blocks of model dwellings. The poverty of destitution and demoralization is spotted over the surface of our towns as concretely as smallpox is spotted over the face of a man sick from this disease. The poverty spots are, however, mouths of the abyss into which human life and our civilization sink away out of sight of man. And to children coming from the poverty spots, it is no use giving a box of ointment or a bottle of lotion to cure their diseases; these things make no impression thrown into the abyss.

A mother equipped with patience, the desire of cleanliness, and the wish for health, may get some good out of a hospital out-patient department, even if the interview accorded by the doctor after hours of waiting be very brief. The mother from the demoralized poverty spot, even if she does arrive at the hospital, will usually get no help of which she can avail herself.

For the poverty group cases are very different from the others.

Take a concrete case, that of a child with a discharge from the ears. The mother of the case I have in mind is a person of tattered, frowsy and safety-pinned raiment, neither face nor hands are especially clean, the face is coarse in feature and grinningly amiable. The home is in two or three dark, semi-basement

rooms, cumbered with backless chairs and decaying furniture. How is it possible for aseptic treatment to be given under such conditions? Regularity is not understood, any directions given, except with the most labored simplicity, are not understood. Sometimes the patient does not attend, at others attends in charge of an incompetent person, to whom it is usless to give instructions, and from whom it is impossible to expect reasonable information. In the particular instance quoted, the person in charge was sometimes a drunken grandmother, and once or twice a sister, only a year or two older than the patient. And this case is by no means an especially bad one; it may even be thought to belong to the aristocracy of the poverty group. It is still possible to treat a child of this kind by the united effort of school nurse, school teacher, school doctor, dispensary doctor, with the casual intervention of the clergyman, the district visitor, and a member of the Care Committee. But there are many children beyond these agencies. One of these is the case of a child attending a school for the mentally defective. The school nurse noticed the discharging ears, and managed, after considerable trouble with minor arrangements, to get the child specially medically examined. At the examination the mother stated that the child was "under treatment." This, it appeared, meant one attendance in six weeks at a hospital out-patient department, where she was given some lotion and some rapid and half-comprehended instructions. The mother then consented for a special arrangement to be made whereby the child was to be sent from school to a public dispensary every day, in order that the ears might be properly syringed out and attended to by a nurse. The school doctor gave the mother a letter for the school teacher, to be given by the child, to the effect that the mother agreed to this. Three days afterwards a teacher called on the dispensary doctor to inquire when treatment might begin, as she had heard about it from the nurse. It then appeared that the letter had not been delivered. Another teacher then visited the child's home and secured the school doctor's letter. "It had been forgotten." After this the child attended at the dispensary most days, but never on Saturdays, when it "minded the baby." As soon as the summer vacation began, the child also ceased attending. After the summer holiday the ears, which were in a most serious and foul condition, were found just as bad as they ever had been. The same thing occurred at the Christmas vacation. And these measures taken to get treatment were quite independent of numerous official letters and inquiries about the child, involving the labor of clerks and other officials on a fruitless task.

Even when with great and, compared with the results, disproportionate exertion, such a child has been cured of one definite ailment, it very often presents another. Frequently a poverty group child shows more than one defect, often several defects, and the cure of one may leave the others unaffected, while the cure of all definite ailments may still leave the groundwork of anaemia and a debilitated constitution unaffected. To get a poverty group child into a good state of health often involves prolonged and expensive treatment, one or more operations on ear, glands in the neck, tonsils or adenoids, a stay in hospital and at a convalescent home, and perhaps a prolonged three to six months' holiday in some country cottage, all of which means much money and very much expenditure of time and energy.

To continue the present methods of dealing with the Poverty Group children is to perpetuate the diseases and defects from which they suffer. Nothing but a special organization to meet the special case will be of any great service. What is done at present is of immense help in ameliorating disease, in easing pain, in keeping the worst conditions from spreading too widely; but what is done at present is costly, cumberous, involves great labor, and effects little permanent result, in the Poverty Group often none.

But medical treatment must be as much a part of the school work as manual training or housewifery, if it is to have a chance to be effective. The educated observation of the teachers will then be at hand, and at the doctor's disposal, to supplement the haphazard observation of the parent; the report of the School Medical Officer and the observation of the school nurse will be available; and the machinery of the school organization, the school nurse, attendance officer, and Children's

Care Committee, a committee of voluntary workers), will be able to be used for the purpose of carrying out necessary instruction in the home and out of school hours. In a word, instead of endeavoring to treat an ailing child by the agency of half-a-dozen badly co-ordained or entirely separate institutions, with no effective grip anywhere, we shall be treating the same ailment as a part of the school life, with the necessary means entirely at our disposal, and with all the other agencies adequately co-ordinated and properly effective.

My own experience at the St. George's Dispensary and School Clinic in Blackfriars, London, leads me to think that an institution of the kind I have been speaking of may very well supply the need of a group of from sixteen to twenty schools, with a school population of anything up to a thousand each. The premises for such a clinic must have a large waiting-room, one or two rooms for consultations with the doctor, and at least one room for treatment and dressing by the nurse. A doctor and a nurse should be in attendance during school hours, and the head teachers of the neighboring schools should send there, in charge of the school nurse or other responsible person, all the children who are to have treatment. These children will be roughly those of the Poverty Group, but they will also include cases of discharging ears and what are called minor ailments which need daily care, and cannot be attended to at a hospital. It would not be necessary for every clinic to be equipped with much special apparatus; indeed, the clinic should act in the first instance as a sorting-out centre. Among the children coming to the institution, some will have defective vision, some obstruction at the back of the nose caused by adenoids, some have discharging ears, and others have threatening or incipient phthisis. Which of these ailments can the school clinic properly treat? Partly this must depend upon the situation of the clinic. If it is near to a good special hospital for eye diseases or for those of nose, throat, or any other special ailments, and if satisfactory arrangements can be made for treatment at that hospital, then it is a waste of energy to multiply treatment centres. But the clinic should always reserve to itself the power to treat any kind of case in the event of a child for any reason failing to go to the special hospital. This does not mean that a recalcitrant eye case should be treated at the clinic, but that the child not getting treatment should be sent to the clinic and arrangements made, through the clinic organization, for the special treatment needed. All that is often wanted, when parents refuse or fail to get the suggested treatment, is a medical talk, giving them information or reassuring them about some not understood medical mystery.

This hypothetical instance gives the key to the line of treatment which must be adopted. The clinic will be the organization which sees that the child gets treatment. A large number of cases, those of diseases of ear, nose, and throat, many skin diseases, chest troubles, digestive troubles, and others, would be actually treated at the clinic. But the very severe ear trouble would be sent to hospital, the serious phthisis to the sanitorium, and the serious bone tuberculosis to the special hospital. The clinic, in fact, while acting as a treatment centre for those defects and diseases which can be conveniently and economically treated in an institution fitted up in a simple and inexpensive way, would also act as a sorting centre, and draft off serious and special cases to the institution where their appropriate treatment could be obtained.

The school clinic should work in the closest co-operation with the hospitals and dispensaries, and have standing arrangements whereby certain classes of cases could be sent direct to them as soon as discovered. Some of the arrangements made at present with hospitals for treatment would fit in well. This means in practice that the clinics would only need the simplest apparatus, and that for the complex cases the costly and elaborate hospital organization would be made use of.

Part of the reason for the establishment of school clinics lies in the fact that without them the large Poverty Group of ailing children cannot be adequately treated because their parents have not time to, cannot, or will not, take their children to private doctors or hospitals. Nevertheless a clinic may look forward to frequent visits from the parents and every possible endeavor should be made to get the parents to attend. There are very few even of the most demoralized slum dwellers who do not wish to do what they can for the good of their children. But when not

only means, but all knowledge is lacking, it is idle to expect the observance of hygienic common sense. Many parents who cannot afford to wait for a whole morning or afternoon, or for the larger part of a day at a hospital, could manage to get to the clinic if a definite hour was fixed. And at these visits a valuable work would be done with the parents themselves.

The clinic should, in fact, become the instruction centre for parents in the art of hygiene, the concrete examples being provided by their own children's ailments. Such concrete hygiene teaching, supplemented, perhaps, by special demonstrations and talks for parents—on the care of the teeth, on breathing and on feeding, for instance—would do more for slum districts and poverty spots than years of abstract lectures in evening schools, admirable as these are.

Above all the clinic must be simple, straightforward, and human. A laughing and smiling child should be the rule, a solemn or a weeping child the exception. The doctors' and nurses' rooms should be places of happiness and kindliness. In this way the confidence of child and parent will be gained easily, treatment will be facilitated and the parents will try to obey and understand rules of treatment and hygiene. In my own experience I have met very few people incapable of following simple hygienic and medical instructions.

The Clinic and Poverty.

In the preceding paragraphs I sketched the organization of the school clinic largely on its medical side, and indicated how it would deal with medically and surgically remediable ailments and defects. But among the Poverty Group children the worst disease, upon which the others do indeed largely depend, is poverty itself. Lack of boots, lack of clothing, and lack of food are not matters which the doctor can professionally remedy. But the school clinic should work in the closest touch with the Care Committee, and when the doctor has done all that is possible to put the ailing child straight from his point of view, the Care Committee agency must be called in to remedy poverty defects which otherwise would render (and do now render under present circumstances) all the medical labor in vain. The underfed child must be fed, the underclothed child clothed. The doctor will certify what social factors are likely to cause or allow a relapse of the illness or defect, and it must be the business of the Care Committee to take precautions accordingly.

I have pointed out above how the school clinic allows all cases of ailment or defect in school children to be adequately treated, how it will link up the school organization more closely with the present school doctors and school nurses, and with the special and general hospitals. How, again, all the activities which have to do with feeding, clothing, "holidaying," and convalescence, may be naturally grouped and co-ordinated with the clinic's medical work. And how further the activity of the clinic and its co-ordinated helpers will stretch beyond its boundaries and beyond the school will penetrate by means of its visitors into the home itself, bringing the sweetness and light of health to the parents of school children (particularly of the Poverty Group), clothed in the garb of their own thoughts and ideas, and exemplified by the occurrences of their daily lives.

The school clinic, by medically studying the child, provides a natural centre and rallying point for all these activities, many agencies which are now working in a scattered and unco-ordinated way for the helping of school children will be centralized by the clinic, organized, and made a hundred per cent. more effective than they now can be.

At present in Great Britain school clinics are being developed on their purely medical side. Clinics for dental treatment are being established in many places; clinics for treatment of nose, throat and ear defects are also coming into existence. Centres for treatment of visual defects and for ringworm are also numerous, but as yet the special task of dealing with the Poverty Group children has not been systematically undertaken. The Board of Education, however, are continually urging the necessity of the treatment of "minor ailments," and these so-called minor conditions which, as the Board themselves point out, are very frequently misnamed, are precisely those conditions most frequently found among the Poverty Group children, and in the treatment of which Education Authorities will find themselves face to face with the Poverty Group to which I have particularly drawn

attention. In this respect the work of the school nurses must not be omitted, for this most valuable work in connection with cleansing essentially belongs to the conception of school clinic treatment of the Poverty Group. Neither medical inspection nor treatment can be truly effective if nurses are not more and more employed to see that the directions given are actually carried into effect.

But while on the purely medical side of school clinic organization it is possible to ignore social agencies and the work of voluntary helpers on Care Committees, from the point of view of the Poverty Group it is essential to work in the closest co-operation with these agencies. The school clinic must definitely regard itself as an engine for the social improvement of the Poverty Group, and must heartily co-operate with all agencies which in any way can help it in this work. This undoubtedly means going outside the bounds of ordinary medical work altogether.

In another way an extension of the work is indicated, and that is in the treatment of children below school age. In my opinion, every school clinic should also be an infants' clinic, and we shall probably even find it necessary to extend the inspection of school children to infants, and thus exercise a continual supervision over the growing life of the nation. Also, as a matter of humanity and of convenience, especially when dealing with Poverty Group cases, it is advisable to treat the mothers and guardians of children who come to the clinic with children for any ailments for which those mothers or guardians may require treatment. To treat these adult cases may just make it possible for them to spare the time from their work to bring the children, and is therefore an important factor in the treatment of the child itself. And, finally, as has perhaps been already indicated, it is essential for good work to establish friendly personal relations with Poverty Group parents and children. Good friendly relations may mean an increase in the efficiency of the work of two or three hundred per cent. We are, in Great Britain, rapidly nearing the day when clinics on these lines will be established in all great centres. And we may hope for great, almost unrealizable changes, when the school clinic pours out health and help and kindliness in every congested and poor district, for then the growth of child life, which now sinks down into the abyss, will spring up and grow healthily into the light and air of good human existence.

HEALTH VISITING IN AN AMERICAN CITY*

By ELISABETH DETWILER,

Nurse in Charge of Infant Mortality Prevention Work, City of Richmond, Va., U.S.A.

We commenced our work here for the prevention of infant mortality in March, 1910, and below I give a brief account of our early experiences:

In accordance with the plan previously decided upon, two districts were selected, in which the mortality had been high in former years, and where lived a class of people among whom it seemed probable that instruction was more urgently needed. One district was selected as presumably having a larger white population. The other as having chiefly a colored population. As it was first necessary to find the babies, a canvass was begun in these districts and continued until May 1st, by which time the names and records of more than 600 babies, born since March 1st, 1909, had been obtained. After that date only such names were added as were referred to us by physicians, mothers and others, as needing instruction. In all, 652 records were secured—324 in the first district mentioned, 239 in the second, and 89 in other parts of the city.

Of these, 96 were dropped for various reasons—the nurse was decidedly unwelcome in a few instances and not needed in others, the baby was lost sight of, or the case did not come within the scope of our work. This left 556 babies who were visited at intervals during the summer.

These 556 were distributed as follows: First district 281, of which 197 were white and 89 were colored; second district 221, of which 8 were white and 213 were col-

*April National Health.

ored; other sections 54, of which 49 were white and 5 colored; making a total of 254 white and 302 colored.

Among these 381, or 68.7 per cent., were breast fed; 11, or 19.8 per cent., were entirely artificially fed, and 64, or 11.5 per cent., were partly breast and partly artificially fed, classified as mixed. The small number of breast-fed infants in proportion to the whole was due to the fact that during the latter part of the canvass, realizing that we could not get all of the infants in a district, we made special effort to get those artificially fed, as it is among these that the mortality is highest.

Among the breast-fed babies the work was along the lines of encouraging the mothers to keep them on the breast, at least during the hot weather, and of giving instruction as to the best methods of keeping up the breast-milk supply. The importance of breast feeding was urged more insistently than any other one thing, though it was often disheartening to advise proper food where the mother was too poor to buy it, or to urge breast feeding so strongly when the mother had to leave her baby to go to work. It was distressing to see on the one hand, babies ill, or dying for the want of breast milk, and on the other hand, mothers with an abundant supply, having to leave their babies to be fed from the bottle, while they went out to work, too often in the factories, ten long hours a day, yet this points out at least one way of saving infant life.

One mother, whose baby we visited, and whose milk supply was plentiful, was wanted as a wet-nurse for twin babies, whose mother was unable to nurse them. The wages were a temptation, and she asked the nurse's advice. The danger to her own baby was plainly stated, and she did not go. Later in the fall, in investigating the food supply of infants who had died of diarrhoea, it was found that another mother had nursed these twins, her own baby dying, directly or indirectly, from want of mother's milk.

In some cases we were enabled, by means of a fund from private sources, to see that the mother had sufficient and proper food, so that she could produce enough milk to nurse her baby through the summer. But it was not easy to persuade some that where there was a possibility of conserving the mother's milk supply, it was safer, as well as cheaper in the long run, to buy milk for the mother instead of for the baby.

When conditions were satisfactory and the baby's rating good, the breast babies were visited about once a month. The artificially-fed were visited more frequently, many of them daily, others several times a week. Many of these visits were made under the most discouraging circumstances. While we were, in almost every instance, treated politely, it was exceedingly difficult to make the mothers and caretakers realize the value of preparedness in the baby's battle with hot weather. In some cases it was not even possible to persuade them to send for a doctor. Diarrhoea was so common among babies in the summer, usually attributed to teething that they thought nothing of it. Many such cases were visited persistently, in the nearly always vain hope that we might strike a psychological moment when we would be permitted to do something. Sometimes we were able to get the mother or caretaker of an artificially-fed baby to use our formulas; in some cases to change from the milk of "one cow" to the clean dairy milk and to use the latter in preference to condensed milk (popular because it needs no ice), to use barley water and to stop feeding when symptoms of indigestion were noticed.

The unsatisfactory visiting was chiefly among the babies turned over to caretakers, those of indifferent and careless mothers, or mothers with so much to do that their apparent indifference was rather following the line of least resistance than intentional neglect. Among the last, our interest in the babies seemed to be appreciated, though our advice was not followed.

The greater number of those visited, however, welcomed us and were interested in what we were trying to do. They evidently found it helpful, as we were often called upon for information and advice. In one district the nurse was told of a baby whose mother had died and who was being cared for by a little girl of fifteen, the eldest sister. The baby was looked up and no one could have been more delighted than the sister-mother, on whom the responsibility lay too heavily. When a housekeeper was found the nurse's visits had become such an institution in the family that supervision was kept up throughout the summer. This baby, an unusually beautiful child, had a trying

summer, as did most of the artificially-fed babies, but was not seriously ill, and when seen in the late fall, was a splendid example of what care may do.

The mother of one colored baby, visited regularly all summer, worked, and the grandmother took great pains in following all the nurse's instructions, using our formula for the food, but thought, nevertheless, that the baby was not getting enough to eat. The baby was never robust, but when seen in December was well and nearly up to the average weight. The grandmother said the baby had only begun to improve when she began feeding in the fall. When reminded that it had had no diarrhœa, or even indigestion, during the summer, she said it had been "droopy" because not fed enough. Here was an instance where unquestioning obedience had probably saved the baby's life.

The total number of visits made during the summer and fall was 4,461. Besides these the deaths of all infants dying of diarrhœa and enteritis were investigated for information as to the feeding. That only 8.7 per cent. of these were breast-fed shows that the encouragement of breast-feeding is the most effective way of reducing the number of infant deaths among the poor. Visits were also made to many expectant mothers, but this could not be and was not done systematically.

Many of the visits were made simply to keep in touch with the babies, and therefore took little time. Otherwise so many visits could not have been made on account of the difficulty in getting and keeping nurses. As the work progresses and is more generally understood, the numbers of babies visited by each nurse may be smaller, as the average time spent with each case will be longer. The increased usefulness of these visits will, it is believed, result in greater efficiency of the work as a whole.

THE RELATION OF THE HOSPITAL FOR MENTAL DISEASES TO THE COMMUNITY*

E. H. YOUNG, M.B.,

Assistant Superintendent, Rockwood Hospital, Kingston, Ont., Professor of Psychiatry, Queen's University, Kingston, Ont.

The subject of Mental Disease has always been a source of anxious interest and curiosity to both the cultured and the general public. But if the interest and curiosity are great, the difficulty of obtaining a clear conception of the numerous perplexing problems to be solved, and the means by which this end may be accomplished is even greater; as a result this field of scientific enquiry is the one most dominated by unreasonable prejudices.

It is useless to disguise the fact that, even to-day, psychiatry is, as a science and art of medicine, very young. The efficiency of its curative measures is in many ways behind that found in other branches of medicine. A great Italian scientist says that Psychiatry is one of the noblest of sciences, but one of the humblest of arts. Our efforts towards eliminating the direct causes of insanity are very limited, because of insufficient knowledge of the mechanism of its pathogenesis, and only persistent, conscientious investigations in laboratory and clinic will overcome this deficiency; such knowledge as we have for example, in mental disorders due to trauma, syphilis, exogenous intoxications and abnormalities of internal secretions is fully appreciated and applied in the various hospitals for the insane in this Province.

Fortunately therapeutic agencies are not limited to those which cure by eliminating the cause of the disease. Many mental diseases are curable sponstaneously through the adaptive properties of the body, provided the development of the curative process, and the patient's life are not endangered by the excessive action of certain collateral symptoms, such as exhausting motor restlessness, insomnia, abstinence from food, suicide, secondary infections, etc. In such cases the usual

*Read before the meeting of the Kingston Medical and Surgical Society at Rockwood Hospital, March 31st, 1913.

well known remedies directed towards counteracting the symptoms, tide individuals through afflictions which are curable spontaneously, and thus render possible a return to normal mental life.

This summary will serve to show how limited is the work of the psychiatrist in connection with the morbid process and its consequences; the results obtained, however, are sufficient to disprove the pessimistic statement of some, that the application of therapeutic measures in mental disease is always a hopeless task. Moreover, it will be seen that the indirect service which this science can render in practice is much more extensive. To one engaged in practical efforts for human betterment it is instinctive that knowledge should be applied. If the causes of certain forms of insanity are now known, if certain forms of treatment can influence mental disease, it admits of no argument that in so far as these are within human control, a serious effort should be made to make the fullest possible use of such knowledge.

From this point of view it is unfortunate that the transfer to a suitable hospital removes the sufferer afflicted with mental illness from the observation of the community. The lessons which would be learned by each community, if its insane were cared for in its own sight, so to speak, would be exceedingly valuable; it would learn, for instance, that a large percentage of such patients are practically harmless, that mental diseases differ much in degree and kind, that they can be influenced favorably by appropriate treatment, and there would be a readier and fuller appreciation of any new light thrown by science upon the origin, nature, curability and prevention of insanity.

The improved recovery rate has had the effect of increasing public confidence in the administration of these institutions, and there is evidence of a readier disposition on the part of the medical profession and the public, to turn to them for help and counsel in all matters pertaining to mental medicine. One of the strangest chapters amongst the stories and traditions which make up the gossip of every hamlet is that about the man who "went crazy and had to be taken to the asylum," and if such a one later is returned to his home and to industrial efficiency, the event is looked upon as little short of the miraculous. Such a patient is the best possible agent for dissipating the hostility and mistrust of his community towards asylums. The treatment of such cases in their own homes by nurses trained in these hospitals contributes to the same end. Public addresses, articles in the press by experienced alienists, and the readier accessibility of the hospitals to the patients' friends, are other factors tending to bring the public into closer contact with the problems of insanity.

There are mental diseases which would shortly disappear could the interest of society be sufficiently directed towards them, and timely measures adopted. General Paresis is one of the most deadly diseases; it attacks adults in the full vigor of life, individuals strong in body and mind, and who, as a rule, have reached the highest point of their social activity. The remote cause of progressive paralysis is syphilis, which is closely associated with prostitution, and, therefore, all remedies directed against the social evil also strike a blow against Paresis. In this connection I cannot do better than quote Adami: "With a fuller realization of the frequency of these congenital (venereal) diseases, of the havoc these are playing upon individual lives, the misery, ill-health and ruin that they inflict, with the surer recognition of the presence and after-effects of what euphemistically we speak of as the contagious diseases, brought about by more exact methods of diagnosis, such as the Wasserman reaction, and the actual recognition under the microscope of the gonococcus and the spirochaeta pallida, we have during the last decade more especially, come to a realization of the hideous frequency of these diseases, and their ill-effects upon the innocent of the second generation. When it is accepted that at least half of gynaecological practice is due to gonorrhoea and its results; that a large proportion of the cases of infantile blindness is of gonorrhoeal origin; that, as demonstrated by the Wasserman test, practically all the cases of locomotor ataxia, and nearly all cases of General Paralysis of the insane are of syphilitic origin; when we know that most cases of multiple successive abortions are syphilitic, and recognize the puny miser-

able paradies of humanity doomed in most instances to an early death, that too often are the result of syphilitic disease in the parent; when we realize the preventable ills that follow in the train of these venereal diseases, I wholly agree that the time has come when we should no longer refer to these matters by circumlocution, when for the good of the coming generations we should openly wage war against gonorrhoea and syphilis, and, above all, should, for the safety and welfare of our children, instruct them as to the dangers they must ward against, not merely on account of their own health and happiness, but for the sake of the generations yet unborn."

The group of psychoses collectively known as alcoholic insanities are directly traceable to alcoholism. In many others alcohol may be a contributing cause by diminishing the resistance of the brain to harmful external influences. There can be no doubt that all successful efforts to restrain the evil of intemperance, whether these take the form of improved social conditions, legislative enactments or educational propaganda, will result in a corresponding lessening of the incidence of insanity. Many patients are annually brought to the doors of our asylums through the excessive use of morphine, cocaine and patent medicines containing habit-forming drugs. To prevent this exploitation of the weakness of human beings for profit, the most drastic prohibitions, and the most deterrent penalties can be justified on the ground of social defence and prevention.

The infantile cerebropathies are to a considerable extent the result of parental alcoholism and syphilis. But far more frequently the infections which arise in the first years of life, from filth, neglect and unsuitable alimentation, are the determining factors in producing the crowd of idiots, imbeciles and epilepties which encumber our public institutions and drain the resources of our public charities. Wherever measures favoring maternal feeding and providing the knowledge and means for carrying out scientific methods of artificial feeding have been adopted, there has been effected not only a notable reduction in the infantile mortality, but along with this, a diminution in the number of children physically and mentally deformed from the earliest infancy.

Another group of insanities, the Acute Confusional Psychoses are traceable to infections, exhaustion, overwork, auto-intoxications, abnormal puerperal or lactational conditions, etc. It is obvious that vast numbers of these are due to preventable causes.

Certain other forms of insanity are supposed to owe their origin almost entirely to psychic causes. The opinion is held by eminent alienists that these causes can be counteracted by adopting methods of education suitable to the individual, and by the cultivation of correct habits of thought. Dementia Praecox is by far the most frequent of all mental diseases which afflict the young. It is the "White Plague" of Psychiatry. Once established it is incurable, and unless proper treatment is instituted in the earliest stages irreparable dementia results. Within the past few years authoritative articles have appeared describing the early symptoms of this scourge, the ominous symptoms of its approach and also the characteristic mental make-up of the child foredoomed to develop the disease. Competent advice as to its prophylaxis has been given; heedless of these warnings parents, after transmitting to their children psychopathic taint, allow them to drift at haphazard into unsuitable vocations and educational courses with utter disregard of the nature of their psychical capital. Hence, instead of the satisfaction and mental enrichment which accrues when one is brought to the place where his best energies may be unfolded, they meet only the long continued irritation of dissatisfaction, mental depression and discouragement which is the inevitable result of maladjustment of personality to vocation and environment, and which is one of the most potent factors in the production of the mental sclerosis of Dementia Praecox. No system of medical inspection of schools in any large municipality is complete without the services of an expert psychiatrist, to whom the neurotic child can be referred for educational and vocational guidance, based on an analysis of his inner attitudes and proclivities—his psychical make-up.

The spectre of morbid heredity plays an important but secondary role as a cause of mental disorder, and its range is much

more restricted than is usually supposed. In the vast majority of cases one does not inherit insanity, but merely mental instability—a tendency towards insanity, which may lie dormant so long as the individual conserves his bodily health, indulges in healthful and temperate habits, and avoids unnecessary emotional strain. It is for the psychiatrist to anticipate the effects of evil heredity by advice as to the management of neurotic children, their education, their amusements and pursuits; thus much can be done to save them from the effects of the inherited weakness.

Generally speaking, it may be said that every effort for improvement in the general public health, the control of infectious diseases, the securing of healthful conditions in home and school, in street and factory, all reforms in educational methods, every principle which tends to regulate social conditions and render them less harsh—in short, all progress in civilization is a means of preventing insanity.

These being some of the causes of insanity, by what means shall this knowledge find its fullest possible application? There is a striking similarity between the position of tuberculosis a few years ago, and that of mental diseases at the present time. A movement for the prevention of any disease should be similar to that which has been so successful in the prevention of tuberculosis. Two distinct lines of action must be instituted; one, the education of the physician in methods of early recognition and treatment; the other, the education of the public as to the origin and modes of prevention of the disease.

Special hospitals separate from our large provincial hospitals to which any person can be taken unobstrusively for advice as to peculiarities, of mental habits, and other ominous symptoms of incipient mental disorder, undoubtedly constitute the best specific agency for the early detection and treatment of such diseases. At present these medical outposts do not exist in Ontario, and therefore their function must be performed by the existing institutions. Each of the three medical schools in Ontario is affiliated, for purposes of clinical and didactic instruction in Psychiatry, with one of the Hospitals for Mental Diseases, the course is now obligatory, and is sufficiently extensive to insure a fair knowledge of the subject on the part of all graduates. Provision is being made for the admission of voluntary patients, and "out-patients" are encouraged to come to the hospital to receive advice free of charge. At Rockwood Hospital it has been the practice to invite the examining physicians to attend the staff conferences at which their cases are presented, but interest is hard to arouse, and in only a few instances has the invitation been accepted. It has, therefore, been arranged that one of the hospital staff give an address on the work of the institution, at each medical centre in the district. Although we have covered only half our territory already beneficial results are seen in increased interest in the hospital by the medical men, and by many new applications for entrance to our Nurses' Training School.

The movement for popular education as to the causes and modes of prevention of insanity proceeds upon the perfectly safe assumption that the public is unreasonable only when it is uninformed—that if people generally understand the facts, they will, to a considerable extent, adjust their lives accordingly. As one factor in this educational campaign the Committee on Mental Hygiene of the New York State Charities Aid Association has prepared suitable pamphlets which are being distributed through every form of organization willing to assist. The newspapers are being supplied from time to time with material stating and re-stating the essential facts, and the medical officers of the various State Hospitals are co-operating with the Society in arranging public meetings at which appropriate subjects are discussed. I believe that the time is ripe when a similar campaign should be inaugurated in Canada; if Psychiatry is to take its proper place as a part of preventive medicine, this matter should not be left to the sporadic efforts of individual hospitals, but should be systematically organized and directed by a strong central committee. It appears to me that the Canadian Public Health Association might widen its range of usefulness by including mental hygiene amongst the branches of public health which it is promoting.

An important link between the hospital for mental diseases and the community remains to be described. Every alienist deplores the high percentage of cases which suffer from a recurrence of their malady

soon after they are discharged apparently convalescent; after wasting the physician's time and skill and the hospital's expense for months many patients return as ill as before. A well-known alienist disputes our record showing an annually increasing number of recoveries, claiming that our institutions are being filled with their own discharges. The fact is that in these cases the mental break-down is but a symptom of certain conditions in the patient's environment, which the physician has failed to take into account, and which baffle his science andnullify his best efforts. Dr. Richard Cabot says that the average physician is used to seeing his patients flash by him like shooting stars, out of darkness into darkness. Maladjustment to home conditions, monotony, isolation, worry, overwork or lack of work, poverty, insufficient food, cheerless or insanitary surroundings, unhygienic habits — these are some of the problems which must be uncovered and solved; our patients must receive social, as well as therapeutic remedies, if the hospital's work is to be carried to effective completeness. The General Hospitals inaugurated a social service department to meet this problem; begun in 1905, in connection with the Massachusetts General Hospital, the movement has already spread to all large general hospitals on this continent. Several of the State Hospitals in the United States have also established similar departments, but only in connection with their out-door department.

Believing that an organized system of social service would materially increase its usefulness, the staff of Rockwood Hospital determined to adopt the general hospital scheme in its entirety, since the beginning of this year one of our head nurses has been acting as field worker, visiting the homes of newly admitted and recently discharged patients in the vicinity of the institution; she examines and reports as to the condition under which the patient has been or is living and where necessary, assists the patient to remedy any conditions which predispose to illness. In order to accomplish this it is necessary to make the fullest use of the various social and economic resources of the community. It is too soon yet to consult our records for definite results of this scheme, but it appears so promising that we believe its introduction marks an important epoch in the evolution of this institution. The visits of the nurse are an important factor in removing the dread of the public towards "asylums." On account of the extra supervision, the necessary period of residence in the hospital can be curtailed, and the patient leaves the hospital with greater confidence when told that the nurse will visit him. It also enables us to continue treatment in the home of the patient and our knowledge of the cause of the illness and the results of the treatment will be much more reliable and definite than ever before, and we believe that by this means the number of readmissions will be greatly diminished.

From the foregoing general outline I trust that it has been made sufficiently clear that psychiatry in practice cannot be reduced to the simple study of the insane, and the manifestations of insanity; such a study is necessary, but by itself ineffectual and sterile. There is no doubt that all sciences have a reciprocal connection, and each advances by taking advantage of the progress made by others. Psychiatry more than any other science, presents numerous facets at which it comes into intimate contact with other physical, social and moral sciences; on all of these it imposes its special problems, from all it requests its special data. Therefore the alienist must, as much as his individual capacity permits, take an active part in the cultivation of neighboring fields of work, in order to further the progress of his own. Until the psychiatrist awakes to the needs of a close co-operation with those other agencies whose specific work it is to achieve the physical, social and moral betterment of mankind, his own efforts to stem the tide of mental diseases will be of little avail.

Some years of cordial co-operation with men and women who are striving to improve our public institutions for the care of the sick and dependent have given me a deep reverence for their nobility of spirit and the excellence of their achievement in ameliorating the distress of sickness, poverty and social maladjustment. Yet my experience compels the conclusion that, until they evolve some means of uncovering and modifying the social backgrounds of disease, until they devise a method of reaching the sick before their condition becomes hopeless, and until they

adopt measures for carrying their educative influence beyond the narrow institutional walls into the homes of the people. our hospitals must stand as an expression of our good intention rather than of our business foresight or scientific acumen.

EUGENICS

The Sordid, Scientific Side or Life

A. P. REID, M.D.,
Provincial Health Officer of Nova Scotia.

Eugenics, the latest of the branches of Science to impress itself on our notice, bids fair to become most preponderating. When Sir Francis Galton presented its scattered elements in a well-defined cluster to the world it was received as the harmless, interesting and impracticable work of an enthusiast, because it did not at once appeal to that dominating agency of humanity—the search for and capture of the solid, though frisky, and evasive dollar that fits so snugly in our pockets (could we but keep it). We will here make an effort to show, not the absorbing interest now conceded to Eugenics, but its utilitarian, if sordid, possibilities.

This may look like a grovelling and base method of treating a scientific subject, but I object to the meaning given to the expressive term grovelling. Scientific pursuit claims elasticity for the boundaries which are its environment, and grovelling is within its precincts. Though not a very apt illustration, we may let it pass. The most high-toned scientist would not hesitate to appeal to the intelligence of the hog when in search of that elusive but valued fungus, the truffle, whether required for economic or other purpose, and grovelling is an appropriate term for this type of research. The Public Health, like other departments of science, seizes anything which may serve to elucidate its mysteries so the elusive dollar must pass through its alembic, and we will find it to be a potent elment in furthering our progress on other as well as economic lines. The old Scotch proverb "A penny trained is a penny gained," can be made a dominant factor in the economic progress and enlightenment of our country, and deserves careful consideration while being an agent pre-eminently conducive to Public Health. This may not be a high-toned scientific argument, and though allied to the grovelling instincts of humanity, if it can be presented with sufficient force it may conduce not only to public health and wealth, but to what is not of less moment, public morality.

We must also recognize a strange economic fact—keen and active as humanity is in the pursuit, capture and retention of the dollar, yet unless it be very much in evidence its presence is very likely to be overlooked—hence the object of our effort will be to tear away the mask which conceals untold millions of dollars that we negligently pass by—because thus concealed, while we make herculean efforts to capture one that may be but dimly seen at a distance, and that we may not capture.

Society must so alter and improve its methods that it may avoid being utterly engulfed in the maelstrom of carelessness and ignorance, that Eugenics steps forward as the guide that can safely pilot it to the safe harbors of health, wealth and desirable possibilities. To illustrate the theme we may descend to some of the gross incidents of public practice, ignorance and the neglect thus engendered.

Let us place our facts on the solid unquestioned foundations of heredity, "like produces like," though not understood until its intricacies were unfolded by the Very Rev. I. G. Mendel, Abbott of Brun, Moravia, Austria. His researches were first given to the world in 1865, and, strange to say, in this active and enlightened period of the world's history—when the most acute minds and abundant financial aid are devoted to every kind of experiment—yet the humble and epoch-marking researches of the humble priest, in his garden, were received and passed unnoticed by the scientific world for 35

years, in fact, forgotten, until in 1900 it was rediscovered by H. Devries, and for the last ten years his views have exerted a profound influence on modern scientific thought, and it is generally recognized that his experiments are the most far-reaching that have ever been made in this direction.

His theory of gamete segregation (individual cell independence) is placed on the same level as Darwin's Natural Selection.

Some of his theories may be, but his facts have never been disputed, and they lie open to scientific workers in hitherto undiscovered regions rich in promise and boundless in extent, which is now beginning to be realized in different fields of nature, as well as in that which at present most concerns us—the development of the human race. Atavism, or the tendency of reversion to a pristine stock is a recognized biological fact never very clearly explained or understood, but the Mendelian laws, not only explain, but define it, and points out the means by which the undesirable recession in race propagation can be controlled, nay, eliminated. This subject, however, is too extensive for present consideration and should form a special article that at another time may be the theme of a paper, not only interesting, but of moment to the economic world.

Here we may give the Mendelian law that most intimately concerns us, "In each generation of the junction of unlike types of a race, 25 per cent. of each type will be pure (50 per cent. in all), and 50 per cent. will be hybrids, and this law prevails in future reproduction.

The disciple of Eugenics is thus given a sound basis upon which to construct practical work and formulate laws which can in time eliminate the undesirable elements of society.

Fortified by the ability of knowing what is possible to be done, we may consider some of the conditions which now confronts us. The experience of the past is an index of the future, and this in an increasing ratio, unless we make intelligent and energetic effort to counteract those banes of society, intemperance, the transgressors in religion, morals and gross criminality, and this the more, as these transgressors are not so much to blame because of their irresponsibility—being obsessed by the laws of heredity. We may first illustrate the tremendous financial loss to society—through the presence of the feeble-minded, not of necessity, immorally or criminally inclined, but the most active agents in imposing financial tax on the community. Then we have the various moral and criminal delinquents, physically strong, and mentally acute, but their aims perverted—which very often are directly descended from or very closely related to the above feeble-minded class. Transposing the motto, E. pluribus Unum, one of many, I will only refer to two illustrations as they have been diligently enquired into and their histories matters of record.

The Jukes Family.

An investigation undertaken under the auspices of the Prisons Association of New York, disclosed the following facts: "A certain Dutchman, a backwoodsman, had two sons, who, 75 years previously to the enquiry (1890) married two sisters, known as the Jukes Sisters, and now have between them produced a race which has cost the State of New York $1,308,000. Out of 1,200 descendants, 709 of these were traced, and of these 140 were criminals who had served an aggregate term of 140 years—280 had been in receipt of public support, and others were either licentious—or suffering from nervous and other disease — inmates of jail, hospitals, and asylums for the insane." (See 30th report of prison association, Albany, printed in 1891). I need only refer to one more, "the woods are full of them."

Margaret, the Mother of Criminals.

Margaret was an uncared for orphan feeble-minded, but strong physically, who had no vicious criminal proclivities and but little moral sensibility. She drifted around, but was not a criminal, and, as might be expected, had a large family with fathers as numerous as the children. Those fathers from the underworld were of varied types—criminals and thieves, diseased, insane, vicious, feeble-minded and paupers. With such progenitors it is no wonder that in the course of 100 years the State of New York was muleted in several millions of dollars for the support of the criminals and imbeciles in the various jails, prisons, insane asylums, hospitals and poorhouses, besides the loss of property from theft, burglary and incen-

diarism to which several murders must be added—all this, resulted from the neglect to care for a simple-minded child.

Let us analyze these facts. All the active agents could be classed as irresponsible, laboring under hereditary influences, they had not the mental ability to control, and as this is every day in evidence, then must society continue to be oppressed by this increasing mass of expensive and worthless humanity?

The answer is Yes, unless our method of handling it be very materially changed. Ordinary common sense would dictate, "We must put up with what we have, but life is limited, let us go to the fountain head and cut off this perennial flow."

The most effective plan urged by many I will not mention as it runs so counter to our ideas of propriety and the liberty of the subject that (at least at present) it would be useless to advocate it, but if we cannot get perfection let us get as near it as we can, and though it may take more time and effort, it has the future probability of success. Let us place all the feeble-minded under such restraint that procreation be prevented; this does not mean punishment—let them be supported while furnishing them the means of assisting in their own support—so that they may pass happy and busy lives leaving none to suffer from their infirmity. The higher mental type, the criminal, should be placed under the same law as soon as his transgression brings him or her under the cognizance of the court, which should be able to deal with each case on its merits. The drunkard is an allied type that requires protection from himself. Were these ideas carried out the whole lot of irresponsibles, imbeciles and criminals would be eliminated in two generations, and some States are now on the high road for this termination. There is, however, a source of supply or renovation of the atypical classes that will for a long time to come be a thorn in the flesh of the reformer.

I refer to our marriage laws and customs, even amongst the responsible classes of society, and though the vast majority of marriages are all of that desirable type that we acclaim, yet there is a minority (in some places, an increasing one) favored by divorce laws that tend to lower the moral tone of society—so much so that with my limited intelligence I fail to see a very distinct line of demarcation between the man or woman who is the subject of a series of divorces and the denizens of the underworld who practice what is often alluded to as free love. Last year the statistics of the United States show that 70,000 children most of them under 10 years of age, were deprived of the care of one or both parents. The only correction for this condition that presents itself to me is a very definite education.

What is education, scientific or technical training, the humanities or the classics can neither of them touch the vital point at issue. This can only be handled by the church that is invested with authority in morals, etc., but we have so many churches that do not work in harmony with each other and whose methods are so diverse, and as the State has no authority to step between these and their teachings, there is a barrier hard to overcome. My suggestion would be that if we cannot reach perfection let us get as near as we can.

Though the State has no right to dictate to anyone what variety of religion or moral teaching he should follow or adopt, yet I think there could and should be a statute so enabling the State as to insure good citizenship, that it should be able to dictate to every citizen to this effect, "though beyond the desire or power of the State to select a type of religion or moral training for any individual, it can insist on that individual selecting for himself (or, if a child, its parents or trustees) one of the many types and conforming thereto." It should also be able to designate or arrange for a definite weekly hour or recess to be allotted to moral training the details of which to be arranged by the interested parties and this to be imperative in every educational institution.

Since the percentage of Agnostics (et hoc genus omne) is very limited in every community — moral training should be quite feasible. Even the agnostics could assemble and discuss their views with each other, for they agree on morals generally in regard to citizenship. Parental and church authority, of late years, has been relaxing their influence to the detriment of the community, but the State must not be blind to or negligent of any means by which good citizenship is assured. Though the churches may inculcate very different types of belief, yet they all agree on that

which favors good citizenship, but each must be more or less confined to its adherents because prejudice would assume that under the ages of imparting practical morality, other things might be introduced.

Let us revert to the feeble-minded and irresponsible—since the best method, as intimated is impracticable, what next?

It is conceded that society has a right to defend itself against all inroads, even the rights of the individual must give way to the general demand. The class referred to is an incubus and a drain on the resources of society with no countervailing benefit and society can put its foot down and say stop just as soon as it so elects.

For untold years different forms of individual and State charitable and eleemosynary aid have wrestled with this subject, but its solution has still to be searched for.

Society is the sufferer, and to it the government, which is its executive, we must look for the solution of this question.

It has the two great elements of success—available finances and the power to promulgate and enforce law. Details of how to carry this out can be varied in many ways, always allowing efficiency to dominate cost and some form of institutional care must be selected.

The building and equipment is the smallest duty, it only means so many dollars, but the tact, skill and brains that go to make up the management and is the measure of its success, is not available from so many sources as the dollars. The whole thing must be developed gradually—must grow by increment and experience.

At first sight the cost looms up, the disturbing factor, but as the method becomes gradually unfolded this will disappear, and by encouraging and training the abundance of labor, on the farm and in the workshop, its maintenance should be but a limited tax on the resources of the community, and its great gain the saving of the loss it would suffer by the unrestrained propensities of the irresponsibles, who would crowd the prisons, asylums and hospitals (which they now do), and then let us consider what their betterment means, not only the avoidance of crime, but the lifting of the underfed and miserable derelicts of society to a higher plane, inoculating them with the responsibilities of citizenship and conferring on them the higher pleasures of sense that otherwise they could never obtain.

They have always appeared to me to be a reversion to wild animal nature, with no difference between meum and tuum—possession is 10/10ths of the law, and all is mine that my ability can seize and retain, and their responsibility should be measured by the same standard.

Amongst domestic animals there are many that can be educated to be strictly honest towards their masters and to one another, but they are higher in type than many who inhabit the underworld of humanity.

A CONSTRUCTIVE PROGRAM FOR HOUSING REFORM

MILDRED CHADSEY, Chief Sanitary Inspector, Cleveland, Ohio.

We have in Cleveland a Bureau on sanitation which has just passed its first annual birthday. I realize that infants are prodigies only in the sacred precincts of their own home, and that it is very tiresome for other people to have to hear about them, but because I believe I call tell you more about a constructive programme of housing reform by giving you the experience of this Bureau during its first year, I hope you will be patient with me if, like other fond parents, I talk too much about this child. There is just one other thing that I cherish as much and that is the precious experience that I have acquired while raising it. Like all who are rich in experience, I want to give everyone else the benefit of it.

The Chamber of Commerce was the godfather of this new department. It is very important that every new city department should have such a godfather. There is no use in starting a new work unless it has some one or more strong organizations back of it, to push it and to vouch for it. Several years ago the Hous-

*Bulletin Ohio State Board of Health.

ing Committee of the Chamber made a careful and scientific study of housing conditions and published the results in an illustrated report. Extracts of the report were published in the newspapers and presented at public meetings, so that there was a popular demand for housing reform when the new department came into existence. In other words, it did not thrust itself upon the public, but was an outgrowth of popular demand. When we began, the newspapers were writing editorials about the need of housing reform and illustrated news items about the work that the new department was going to do. All of these newspaper articles overlooked the fact that we had no legal legs to stand on, and that the only weapon we had with which to wage this battle against the slums was a little clause of the Ohio State laws which said that boards of health should have the power to abate all nuisances. I cannot mention that clause without paying tribute to it for it has done such valiant service, fighting everything from a $250,000 tenement house to a garbage can. Both because of the pressure of public sentiment and because of our own enthusiasm to do some of the many things that we saw on every side that ought to be done, we started out to act, and trusted to luck and to this one small clause rather than to any real legal status to carry us through. The first thing that we did was to condemn and to order down a large number of miserable shacks and tenements that were beyond the possibilities of repair that would make them fit for habitation. Within six months time we had succeeded in getting down two hundred of these places, and had succeeded in getting a thousand more repaired and put in a sanitary condition. You know what these places were like. Every city and village that has not had and enforced sanitary and housing regulations has a heritage of such places, dilapidated shacks with foul outhouses and contaminated wells; old one-family homes made into makeshift tenements, housing six and eight families, with thin board partitions, dark inside rooms, foul plumbing, great fire hazards and every violation of privacy. In fact, we found so much to be done and public opinion was demanding that it be done, that had we stopped to inquire too closely under what legal authority we were acting, would have been like stopping to analyze the chemical properties of the water in which we found ourselves afloat instead of swimming to shore.

However, I knew that the day of reckoning would come, but it had been so long in coming that we had come to fear it less and less and in the meantime became more and more absorbed in issuing orders for repairs and improvements that were so evidently necessary. One day I heard the day of reckoning coming down the hall and a loud voice that came with it asked in strident, irate tones.—"Where is that woman who has been bullying the taxpayers of Cleveland?" With a timidity that was not altogether assumed, I admitted that I was the object of his wrath. When he saw me he heaved a sigh of relief and said, "Well, little one, I guess, I guess I won't have any trouble doing business with you." The hardest thing I ever did was to keep from having trouble then and there, but I knew that if I lost my temper I would also lose my case with this man, for I knew if I could not persuade him to do what I had asked him to do, I was lost as I could not refer the case to the city prosecutor for the very simple reason that I had no legal backing. I was asking him to do for an existing tenement a thing that the law required only of new tenements. As a matter of fact, the law required nothing of existing tenements, so that anyone who was fortunate enough to have built a tenement prior to the passing of that ordinance, could do or not do any thing with it, as he pleased; but I knew that if I admitted this fact to this man, that every other tenement house owner in Cleveland would know it by the next morning, and that in the future the orders that I issued would not be worth the paper that they were written upon. Therefore, I subdued my wrath and began to transact with him the business that he thought would be so easy of accomplishment. We talked for four hours, stopping for lunch between sessions. He would probably tell you that he talked me into seeing things his way, but I will just as confidently tell you that I talked him into seeing things my way, and I can produce as evidence six new sanitary closets to replace the two foul hopper closets, and a skylight to open up a dark hallway from which bedrooms tried to get ventilation.

I might add in passing that my strongest argument was a pin map showing the cases of tuberculosis in this city. Every black pin indicated a case of tuberculosis at that place, and one section of the city was so black that there was not room for another pin though there was still plenty of room in the district for new cases of tuberculosis all of the time. It was in this district that my friend owned $250,000 worth of property. He argued with me that his houses were no worse than any other houses in the district and that if he made them so much better than the other houses, the "Dagoes" and "Hunkies" would not feel at home in them and would move out. After he grasped the meaning of the pin map, he realized, for the first time in his life, the relation between tuberculosis and infant mortality, and high death rate on the one hand,—and foul plumbing, dark unventilated rooms, dark cellars and filthy yards on the other hand, and he realized that neither "Dagoes" nor "Hunkies" nor anyone else chose to live in these places where the morbidity and mortality rates are twice as high as in normal districts because they are especially keen on taking chances or because they feel more at home there, but because these are the places that this country of opportunity has offered them, and because they are ignorant of the dangers of such places, and because they too often put themselves and their children in hospitals or graves in their effort to put money in the bank, and because places of this kind are not only cheaper, but so much more in the majority, they make themselves feel at home in them, for the very simple reason that they have never had the opportunity to feel at home in any other kind of places.

This man has come to be the watchdog of his district. Inspired partially by a desire to see that I require as much from the other property owners as I require from him, and partially by a desire to make sure that I have no opportunity to loaf on the job, he keeps me busy. The broad conception that he has of my powers and duties is very flattering when compared with that which he had on the first day he came to my office, but it is at times most disconcerting. One day, not six months after I spent the four hours arguing with him that the foul hopper closets must be removed from the dark cellar and sanitary closets installed on each floor, he called me up on the telephone and asked why I did not order out a certain sewer vault. When I explained to him that I could not because the police prosecutor had refused to issue a warrant on that order,—he said, "I'll go over and make him do it. Sanitation is sanitation, and he's got to be made to see it." He went, and I honestly believe that that man's visit to the police prosecutor's office on behalf of our department did more good than any liberal education in all of the advanced housing and sanitation courses that any college could have offered him. I dwell so long on this case because it is typical of hundreds and because it combines the three problems that confront every one who undertakes housing reform:—the problem of educating people up to the higher standard, the problem of getting adequate laws, and the very grave problem of getting these laws enforced after they have been secured.

You may think it an easy task to educate people, both property owners and tenants, when public sentiment is back of you and your work, but you will soon find that public sentiment is very impersonal, and that owners and tenants are very personal. It is easy enough to talk about the theory of housing reform and illustrate it with examples of horrid houses. Your lectures are much in demand so long as you do not show houses that belong to any of your audience. It is equally easy to give a newspaper reporter a heart throb story about the children of the slums, and the more nearly as Dante's "Inferno" you make the slums appear, the more of the story he will publish, but if that newspaper story happens to mention this or that district as the worst in the city, expect to be met the next day by a delegation of outraged individuals who will accuse you of defaming their fair part of the city. If you get the Woman's Civic Club too interested in filthy back yards and garbage strewn walks and alleys, expect to hear from the head of the garbage department that you are a "butterinsky." If you ask too much of Mike Sullivan or Abraham Bernstein, expect the councilman of their ward to ask for a little special dispensation in their behalf. Public sentiment is a great deal, and very neces-

sary, but it is not a bark that is going to carry you over smooth calm seas. It is merely the bark in which you put out to sea. If you get separated from the bark, you don't get ashore. If you can hold to it, even while you are lashed by individual waves of indignation and opposition, your chances of reaching shore are better. The battle with the individual waves is the exciting and the real sport.

Public sentiment has made a demand for higher standards in housing and general sanitation. Even the proletariat talk familiarly about germs and their relation to disease. There are to-day religions that are based on the science of good health, but neither the religious nor the irreligious are going to put too much responsibility on science or Providence, but where it rightly belongs, on the dark unventilated rooms and overcrowding in these rooms, the foul plumbing, the filthy yards, the garbage pile and the fly. The day when a health officer can crawl out from under and calmly write in his report,—"It was the will of God that many in this district should die during the past year" has passed, and instead Drs. Wiley and Woods Hutchinson make many magazines enter the class of best sellers with their popular articles about health.

Formerly you were not the keeper of your brother's back yard or your landlord's basement, but now because you are, the Bureau of Sanitation of Cleveland received 10,000 complaints to that effect last year. If 5,000 of these complaints were from tenants who objected to the neglect of the houses in which they lived, we were pretty apt to appear unreasonable to 5,000 property owners; if 5,000 of those complaints were from property owners because tenants were ignorant and careless and abusive of property, 5,000 tenants were convinced that we were unreasonable. Next year there will be more complaints and less unreasonableness, that is, there will be if we succeed in the task of educating people that our requests are reasonable. That is the time worn process of education. It is a slow, often dreary and always a painstaking process. It means personal interviews; it means making small concessions at first in order to keep friendship and so get larger accomplishments in the end; it means smiling and appearing reasonable when you would like to perform a surgical operation on somebody's cerebral processes; it means that you must be very grateful to all for the advice that the officious give and that you put in the waste basket when they have gone, it means that you must hate none so much as the high-browed reformer and the lady bountiful, but it also means that every day you must have the ability to learn, and just in proportion as you have the ability to learn, you will have the ability to teach. The first thing to learn is that you can't give people reform as your father gave you castor oil. You have got to disguise it and hold it back until the people want it. You have to learn all about the problems of vested rights; you have to realize that every man who has been a property owner and a tax payer in the city before you were born, is going to tell you how to run your job, and you have got to teach him to tell you the right thing. After you have learned to do all of these things and have learned how to keep your self-respect and your ideals at the same time, you begin to juggle with the legal aspect of the situation.

If a survey of housing and sanitary conditions has been made and both the community and the officials are familiar with conditions and the problems that these conditions make and the remedies that are needed, then, and not until then, is it time to ask for legislation. Too many communities ask for legislation before they know what they want or need. The ideal way is for some private and disinterested organization, such as a Chamber of Commerce or City Club or Municipal League to make an exhaustive study of conditions, so that the community may know just what its problems are and then get through the necessary legislation, then create the department whose functions will be to enforce these laws. Columbus followed this plan. As I understand it, the new tenement house code was a law before the department was created, so that when the department came into existence, its duties were evident and easy of accomplishment.

Most cities are not so fortunate as to follow this logical sequence. As I said, Cleveland worked up popular sentiment as a result of an investigation and then organized its department, but left it to

the department to work out its own legal salvation. This is not quite an accurate statement, for the Chamber of Commerce has never deserted us and is at this moment working on the new tenement house code that is going to give us much of the legal backing that we need. We believe that this code is going to be more fully fitted to our requirements because we have had the benefit of a year's experience in finding out what we need and want, but I am not convinced that we have not paid pretty dearly for the experience. It is a dangerous thing to sail too close to the wind for too long a time, and that is what we have had to do here without our code since the creation of the department. I am inclined to like the Columbus method better. Of course, we think our code is going to be the best in the country. It ought to be, for we have the benefit of studying Mr. Veiller's model code, the Columbus code, Indiana State code and some of the foreign codes, taking from each the part that we think fills our needs.

Every tenement house code for every community must be an adaption of the best in all codes to the needs and requirements of that community. These codes are all constructed along the same general lines, that is, they are divided into three parts. The first part has to do with the regulation of new buildings. I need not tell anyone here the importance of stopping now the building of more bad tenements in order to prevent the growth of slums. Although this section of the code is always the largest and the most technical in that it goes into structural detail about the size of rooms and air shafts and area ways, the strength of beams, the width of treads of stairs, the kind of fireproofing, the percentage of lot occupancy, etc., etc., it is not difficult to get this part passed. You see, no man is the owner of a tenement that is not yet built, so that all of these requirements are recognized as being reasonable and just.

The second part of every code has to do with the alteration of existing buildings to bring them up to a certain standard. Alteration is, at best, a makeshift, and involves hardship to the property owners, and the standards for these old buildings can not, of course, be as high as the standard set for new buildings, but they must be set high enough to do away with the most flagrant evils of many existing tenements. For instance, the Cleveland code provides that "No room in any tenement erected prior to the passage of this code shall hereafter be occupied for living purposes unless it shall have a window or windows with a total glass area of 10 sq. feet opening directly to the outer air unless such room be directly connected with a room complying with the above requirements, in which latter case the partition separating such two connecting rooms shall be entirely removed." All of which is the legal way of saying that all dark rooms must be done away with by removing the partitions and making them a part of the rooms that have access to the outer air. We have also limited the size of the air shafts in existing tenements to 25 sq. feet. You all know that any air shaft of less area than that is nothing more or less than a flue for foul odors and a garbage dump for filthy tenants.

We have ordered a city water supply and sink with sewer connection in every kitchen. This is one of the things that can be done, and then we will not find ten families dependent upon a hydrant in the yard that is frozen for three months in the year. We have required one sanitary closet for every two families, and thus we hope to do away with the foul yard closets that have neither cleanliness nor privacy. For new buildings we require one toilet for every family, but that clause will not be fought half as strenuously as will be the one requiring one toilet for every two families in existing tenements, for the man who builds a new tenement can much more easily include in his plans a toilet for each apartment than he can remove an old yard fixture and install sanitary plumbing in an old house. It is not difficult to see that this second part of the code is the important clause and the difficult one to get passed and difficult to get enforced after it has become a law. But we have now 75,000 old buildings in Cleveland, while we have only a hundred new ones each year, so while it is important to keep more bad buildings from going up, the big task is that of bringing up to a certain standard of decency all of the old buildings.

The third section has to do with the maintenance of all buildings. This is a very brief section, but it is the one that means the most work for the department

that enforces it. We may dream of the time when we will get all new buildings to conform to the code, and even when we get all old buildings remodeled so that they come up to the requirements for buildings built prior to the passage of the code, but in our most imaginative moments, we never hope for the time when we will not have to make a general inspection of buildings to see that they are kept clean and in good repair, that back yards are not dirty and that garbage and rubbish are being properly disposed of, that tenants do not overcrowd their apartments with boarders or stop up the plumbing, or that landlords do not nail down windows or turn off the water supply.

After you pass such a code as the one I have been talking about, do not feel that you have clear sailing ahead. I thought that I had a perfectly good law that required all houses on sewered streets to abandon privy vaults and to make sewer connection and install sanitary plumbing. I made the fatal mistake of issuing 5,000 of these orders at once. I took the very logical position that all of these orders had to be complied with whether a man could afford it or not, just as he had to meet his taxes, that a person could not afford to own property if he could not afford to bring it up to the requirements of city ordinances. But if I could stand the pressure of these 5,000 orders, the police prosecutor could not, and it was not long before I received from the city solicitor the ruling that I was attempting to enforce an ordinance that should be enforced by the plumbing department, and he showed me the laws of Ohio which state quite plainly that boards of health shall have power to regulate all plumbing, etc., except in cities that have a building and plumbing code. The building and plumbing departments have to do only with new buildings, and the board of health has always heretofore looked after violations in existing buildings. The plumbing department cannot take over this work now because it has only enough inspectors to look after the work on new buildings, so that all of these orders have to stand until we can go to the city council and get them to delegate the power to act to our department. Had I served 500 orders instead of 5,000 orders, this confusion might never have come to light and by this time I might have had the 5,000 orders complied with. Instead I have 1,500, and I am grateful for that many.

The lesson I learned from this experience has been most valuable to me. It is the lesson that Lord Salisbury must have learned when he wrote that a little sanitary instruction is more valuable than a vast amount of sanitary legislation. Laws are splendid and necessary things, but they are often like hot taffy. You have to wait for them to cool before you handle them too freely. The cooling process is the educational process. Laws can always be misconstrued on a technicality, or they can always be repealed. Knowledge founded on fact and experience, cannot be repealed. It is more durable than any creed or constitution.

Like the sophist, we have traveled in a circle and are back at the point from which we started,—education; education that creates a demand for better things than we can get through legislation. Some of the greatest advances of sanitary housing have been made purely as a result of education and are not yet maintained by any legal regulation. Robert DeForest illustrates this fact by the following example:

"One of the greatest recent advances in sanitary housing in America is the general introduction of the bathtub. So far as I know, there is no law in any American city requiring baths in houses of any kind. Their general introduction is the result of a demand caused by a better knowledge of hygiene. 87.7 per cent. of the plans filed in the New York Tenement House Department during the last year have a bath in each apartment. Thus, simply by educating the people who, ten years ago, used the baths that they had for coal bins or pickling vats, to-day we have these same people being supplied with apartments with baths because they have created a demand for them."

Thus we see that many housing conditions that were deemed proper a few years ago are to-day deemed improper. Therefore, any constructive programme for housing reform must be a varying one, dependent upon the spread of sanitary knowledge. With the advance of science and the wider spread of knowledge, it should be a constantly progressing programme. There is in every American city

to-day an ever increasing group of citizens who realize that the city's best development rests in securing good living conditions, and thereby preserving the life and wellbeing of its working people. Such conditions can not be secured through the exploitation of land, for exploitation makes land more valuable than human lives. Exploitation means fictitious land values for the few who are protected by special privilege and a depreciation of land values for those who are not protected. Exploitation means congestion of population with the resultant evils of death and disease for which the tax payer must pay.

All efforts to solve the housing problem must fail unless it reaches down to the economic basis of life. It means not only providing conditions that prevent disease and death, the expense of which the community must meet, but it means providing conditions that increase the efficiency of the working man. It is a sad commentary on our present day civilization, but it is true, that the only housing experiments that have been tried out in America are those that have been tried out by employers who have recognized that the working man who comes from a clean, wholesome home is a more valuable employe than the one that comes from foul and sordid conditions that have sapped his energies and lowered his efficiency. If housing reform has any justification, it is that it helps to raise the efficiency of the worker and helps him to help himself, and to thereby become an asset and not a liability to the community.

THE PHILOSOPHY OF MASTICATION*

GEORGE M. NILES, M.D., Atlanta, Ga.

The chewing of our food is a subject of more or less interest to all of us. Beginning with the precept inculcated in every nursery, we are constantly admonished throughout life that thorough mastication is a prerequisite to health; while a rather recent school of thought contends that the whole process of bodily nutrition is markedly affected by the preliminary treatment of food in the mouth.

Mastication is an entirely voluntary act, while the performance of swallowing is a complicated reflex movement, which may be initiated voluntarily, but is, for the most part, completed independently of the will. Under normal conditions the presence of moist food on the tongue seems essential to the completion of this act, and I might add that a pleasant taste, coupled with a favorable metal attitude, still further facilitates the passage of food down the esophagus.

Too rapid eating, or tachyphagia, is a frequent fault, and has, no doubt, caused many digestive qualms, besides being the starting point of many chronic disorders of the alimentary tract. This I admit. What I do not admit, however, is the necessity for slow, deliberate and systematic mastication as a sine qua non for health in every individual, irrespective of temperament or station in life; nor do I believe it conducive to the best work of the digestive organs that a hard-and-fast rule be enjoined, whereby a certain stated period must be devoted to the mastication of a meal, regardless of the pleasure of the masticator.

From time to time apostles of deliberate mastication, or bradyphagia, have appeared on the horizon, the most prominent of these being Mr. Horace Fletcher, whose work, "The A. B. Z. of Our Nutrition," is so largely devoted to this topic, and who so well pleads its cause, that slow eating has come to be called "fletcherism"; and to chew and insalivate food until it liquefies in the mouth is to "fletcherize" it, according to the nomenclature.

Mr. Fletcher is an American, who, when middle-aged, obese, dyspeptic and discouraged, discovered that by slow and deliberate eating his health improved, and began to elaborate this supposedly new principle. Asserting that he literally chewed himself back into health, he also argued that by the extreme mastication and insalivation of food, appetite is satisfied with a much smaller amount than is ordinarily craved, while at the same time bodily and mental well-being is greatly enhanced.

*Journal American Medical Association, March 29, 1913.

Mr. Fletcher was really anticipated by Mr. Gladstone, who, as the first advocate of this fad in England, attributed much of his success in public life to the fact that he had always made it a rule to give every tooth a chance, counting thirty-two bites for each morsel.

Under Mr. Fletcher's skilled exploitation, mastication as an art has grown and budded and blossomed until it has become a new theory, so popular that any one seeking to impede its continued fruition is considered by many either an iconoclast or an ass.

As regards the protein constituents of food, insalivation exerts but little effect. We well know that either the pepsin and hydrochloric acid in the stomach or the trypsin beyond will attend to them, if they are decently comminuted, and their stay in the mouth need be only long enough to originate those psychic impulses which Pawlow has shown us regulate the subsequent flow of digestive juices. Carnivorous animals and reptiles habitually bolt their food, and zoologic history furnishes no record of any psychic forms of dyspepsia in these creatures. The essence of salivary digestion is the transformation of starch into sugar by the action of the ptyalin, and that process, though inaugurated in the mouth, continues until the whole of the stomach contents has become acid. The time of salivary digestion is brief, and to be effectual should be energetic. No more should be expected of it than a preliminary act. The pancreatic and other juices beyond the stomach will care for the starches, if only the psychic centres forward the tidings as received by the gustatory senses.

As to the method or comparative rapidity of chewing, I might say, and say correctly, it is to a great extent temperamental. As some people can perform a stated task, and perform it well, in half the time required by slow-moving individuals; and as some people move quickly, speak quickly and think quickly, so they also chew quickly, but well. By those ardent and strenuous spirits who are happiest when in the busy turmoil of competitive struggle, the act of mastication is naturally performed briskly, but none the less adequately. To that other class, who desire to meander through life in a leisurely way, "far from the madding crowd's ignoble strife," to those semivaletudinarians whose gastronomic powers are under constant mental scrutiny, fletcherism promises the fountain of youth.

Another objection to interminable mastication is the brevity of life. In one place Mr. Fletcher relates that one-fifth of an ounce of a young onion required 722 chews before it disappeared through involuntary swallowing, and Dr. Kellogg mentions a patient who cheerfully spent never less than an hour and a half in masticating his one small daily meal. To insist that busy men, those whose shoulders and minds bear the burdens and cares of government, commerce or literature; whose eager intellects are conquering the earth, the sea and the air—to insist that these should be subjected to a wearisome mastication of inanimate food, is a delusion and a snare, an anachronism in our twentieth-century civilization, and a frittering away of priceless time.

A short while ago there consulted me a cadaverous-looking dyspeptic, who informed me that, up to his retirement from active business five years ago, he had never experienced a digestive discomfort. During his laborious years he ate his breakfast hurriedly, so as to get to the store betimes. His lunch was snatched at a nearby restaurant, while his evening meal was frequently rushed by some important engagement. The finer details of mastication never entered his head, nor did he realize that he was "digging his grave with his teeth," until so informed by an overzealous friend acquired in his new life of leisure. The small seed, once sown, took root in his idle mind, and, with little else to do, he devoted himself assiduously to fletcherizing his food and safeguarding his health. The result of this was a morbid introspection, which transformed a robust, alert business man into a puny, whining invalid, full of pains and obsessions, and with every waking thought short-circuited on his stomach. That this is not an uncommon case any observant physician will testify.

The students of digestion and nutrition, guided by the beacon lights furnished by Pawlow and Cannon, are each year according more and more potency to the psychic factors involved in every function of those organs, and benighted indeed is the intellect that can comprehend only the

mechanic and chemic aspects of these all-important questions. When an appetizing meal is placed attractively before a hungry diner, both the eyes and the olfactories set in motion the preliminaries to the digestion of that meal. As each mouthful is received by the waiting gustatory tract, it is chewed and insalivated just enough to promote easy deglutition, and to allow its savory taste and aroma to be thoroughly appreciated. In the meanwhile numerous messages are being sent to the stomach, pancreas and other organs concerned, informing them in language perfectly intelligible how much and what kind of aliment is being sent them to digest. Should the messages be of cheerful import, these organs set to their tasks with alacrity, performing them with such ease and dispatch, that the fortunate owner need not know that he even owns a stomach.

On the other hand, should the same meal be taken with severe gastronomic contemplation, and with arduous and lengthy mastication, the message may be "flashed" to the same waiting organs: "Your master has lost confidence in you, the mouth and teeth will take over the most of your former duties, and hereafater you will be under constant mental surveillance." It is easily understood that under such conditions digestion is performed in a halting, complaining and unsatisfactory manner, and well may we say that "the last state of that man is worse than the first."

A certain amount of necessary chewing is advisable, as evidenced by the conformation of the human teeth. If the chemical functions of the stomach are deficient, or if the outlet is greatly constricted, fine mastication and thorough insalivation are highly beneficial. Fletcherism is also allowable in those lackadaisical creatures whose tastes are gently epicurean, and who possess the desires of a Lucullus, minus the initiative. Let these harmless souls chew to their heart's content, for they need some fad, and this one can harm no one unless it be themselves.

To the great majority of every-day Americans, a simple injunction as to good teeth and ample mastication is entirely sufficient. But to those ardent beings who move impetuously through the drama of life, whose every act is intense and every movement like a flash—to these fletcherism is a thorn in the flesh, causing them to worry and chafe like a spirited horse held back by a cruel bit.

Each division of the alimentary tract has its rightful duties in the life-scheme of nutrition, and the magnification of any one is liable to prove an opening wedge for various digestive ills, that, like jealously, furnish the food they feed and grow on.

As we cannot by thought add one cubit to our stature, so let me close with the paraphrase, "No man can by taking thought add energy to his stomach."

OCCUPATIONAL DISEASES*

H. B. BLAKEY, M.D., Columbus.

The extent of the field of medicine in which the occupation is the exciting or at least the prominent predisposing factor in the production of injury or disease cannot be realized until one has made a special study of this important phase of medical activity. Industrial progress has been so rapid as to far outstrip all measures adopted to safeguard those employed. In the eighteenth century water power was supplanted by steam power, factories grew in number rapidly, labor flocked to the manufacturing points, and the crowded city conditions arose. Unskilled and untrained labor proved capable of running machinery, and consequent upon this knowledge arose the demand for women's and children's labor. From this time on machinery was rapidly perfected, the cities grew to great size, and the development of many varied types of industry, each with its own peculiar menace to health followed.

Let us look in a general way at the factors which produce industrial diseases and accidents. First, what are the factors in the workers themselves distinct from the occupation, which predispose to disease. I will mention want of cleanliness, first. The importance of this factor can-

*Bulletin, Ohio State Board of Health.

not be estimated until one considers the possibility of the absorption of metal and the contamination with infectious materials. Combine lack of cleanliness with improper housing, deficient clothing and food, and we have a factor complex which inevitably leads to disease. Sex has a place as a predisposing factor inasmuch as many injurious occupations have more serious effects upon women than men. Age is so important that the bulk of legislation has been directed to this point. Habits of the laboring people have an important effect, as witness alcoholic indulgence. This predisposes not only to accidents, but to metal poisoning, to arteriosclerosis already imminent in the muscle laborer, as well as to epilepsy in its protean manifestations.

Let us review in a general way the possible sources of disease which are due to the occupations. Because of the vastness of the field of occupational diseases and because almost any one phase would be broad enough to justify more time being devoted to it than I am allowed in this discussion, this paper must at best be confined to a more or less brief enumeration of the diseases which occur in certain industries and the deleterious effects of occupation directly upon the worker. In a general way, then, all occupational diseases can be divided under two heads; first, those which are intrinsically dangerous to health because of the nature of the materials used; second, those which are carried on under conditions avoidable or unavoidable which promote susceptibility to disease. I will amplify these two classes giving concrete examples under the two heads showing the great diversity of the causes and how directly the health of thousands is affected. First, let me mention those diseases which are due to exposure to metallic poisons, fumes and dusts.

Lead is responsible for more morbid conditions than any or all of the metals. Dr. Alice Hamilton has shown that lead poisoning may occur in one hundred and eleven different trades—a surprising number. Prominent among these occupations may be mentioned, the smelting of the metal, printing, file cutting, tinning and enamelling, all occupations demanding the use of paint, and china and earthenware manufacture. Arsenic, copper, bronze, zinc, mercury, and manganese poisoning are less common in the arts and manufactures. Phosphorus poisoning will be checked by the efficient legislation recently directed towards the manufacture of matches. Then we have a series of diseases due to gases and vapors. Under this head can be classified those due to carbon dioxide, which is given off in lime kilns, and in the manufacture of starch and beer; carbon monoxide a much more toxic gas is met with in the manufacture of soda, illuminating gas, in blast furnace work, and in cement and brick making. Acetylene gas now so much in demand, is harmful when confined to enclosed spaces as is also the benzine vapor formed in dry cleaning plants and from quickly drying paints.

A third class consists in those occupations which involve exposure to organic and inorganic dusts. The various forms of lung disease resulting from dust are known as pneumonoconiosis. The chief types are siderosis, due to iron; anthracosis, due to coal dust; chalicosis and silicosis, due to sandstone and mineral grit; byssinosis due to cotton fibre. Under the heads of occupations which expose to dusts could be classified, the manufacture of cotton goods; chair making and other wood working; the horn and celluloid industry; the woolen industry; the boot and shoe industry; tobacco industry; corn broom manufacture; pottery work and stone masons work.

A fourth class would be those occupations which do harm because they demand constrained attitudes for a long time. Still another, along the same line, would be those occupations demanding the overexercise of certain parts of the body and which require the use of certain sets of muscles continuously. Among these would be those diseases classified as occupational neuroses. These consist in sudden cramp produced in a group of muscles used in certain acts and brought on exclusively during the execution of these acts.

The most typical is writer's cramp, but any occupation requiring the prolonged use of muscles with its consequent fatigue may produce some type of this malady.

Again there are a number of occupations which are deleterious because they involve exposure to excessive heat or humidity or both. Of these the metal in-

dustry, blast furnace work, the felt hat industry, and laundry work are the common examples. These occupations, particularly, predispose to lung disease.

Then we have a disease due to working in compressed air, caisson disease. The prevention of this disease is becoming more and more important since more and more of the underground work is being done each year.

The opposite condition to this is found in disease due to a lessened atmospheric pressure, such as is found in deep mines and high altitudes.

The mining industry is accompanied not only by many opportunities for accident and injury, but also by its peculiar train of diseases, which the more common are miner's cramp, miner's boils, miner's hand, elbow, and knee, anthracosis, nystagmus, deafness and carbon-monoxide poisoning.

Even certain parasitic and microbic diseases are largely due to occupation. The most striking example of this is, of course, anthrax infection, occurring among those persons who handle hides and wool. Also the hookworm disease can be classified as an industrial disease since it occurs among miners and those who work in dark, damp places.

While the generation of electricity and electric welding are not unhealthy occupations, yet they have some characteristic deleterious effects. For example, accidents from high voltage, extensive burns, the bad effects upon the eyes of strong and intense light. The X-ray, which is dangerous, is fortunately used in the greater part by those who should recognize these perils.

Another factor aside from the purely physical cause and effect enters in the health problem. All work should be ennobling, should add to the happiness of living, yet how many of our occupations tend to degrade or at least to retard all intellectual development and activity. Long, cheerless monotonous days spent in the textile factories doing the same simple or intricate thing over and over again are not conducive to great increase of intellectual or physical strength.

One factor, not in a sense a specific cause of disease, yet one of the greatest causes of ill-health in this country, is the rapidity with which we must all work. It will be interesting to study the effects upon the health of the working people from the increased speed with which machinery is being run. The constant, sustained, nervous strain in watching complicated machinery for hours cannot fail to undermine the health of the too often ill-nourished working girl.

Fatigue is one of the most important subjects which arises in the problems connected with industrial disease because of its connection with the question of how many hours should constitute a day's work. This problem will never be determined scientifically or satisfactorily until adjusted according to the principles of physiological fatigue. Certainly every one will admit that the capability for work varies according to the constitution, the age, the sex, the modes of life, and some allowance must be made for the individual capacity for work. On the other hand, no two occupations are identical in their demands upon physical or mental power. The man who works in intense heat should not have the same number of continuous hours as a carpenter at the bench; the textile factory operator who at her machine watches 16 to 18 needles for broken thread with the severe strain thus imposed should not have the same working schedule as the girl who sells goods behind a counter. Surely the hours of toil should be proportional to the nature of the work and as to its fatiguing character. No arbitrary rule can be made which will meet these demands.

I wish to report briefly a few cases which have recently come under my care, not with the idea of demonstrating the diagnoses which were easily made, but to bring out the etiological factor, to show how definitely the occupation was responsible, and to show how easily the resulting disease could have been avoided.

Case 1. Mr. E. C. B., linotyper, aged 36. Had worked at this trade for many years. First as an ordinary typesetter and more recently as a linotyper in a room where the ventilation was extremely poor. In his work he handled lead-antimony composition, the alloy being heated for casting; breathed the dust caused by its use and destruction, and handled the type itself. Complained of headache, constipation, occasional attacks of acute gastric

pain. Examination showed the lead line, as well as an eosinophilia of six per cent.

Case 2. Painter, 54 years old, who had handled the white lead for many years. In addition to the above mentioned symptoms this patient showed a well marked wrist drop.

Case 3. Seamstress, aged 38, had been treated for neuralgia of the stomach. Had the usual symptoms of lead intoxication including the lead line and the eosinophilia. The interesting point in this case was the source of the infection. This proved to arise from the thread which the patient was in the habit of chewing all day as she worked.

Absorption of lead occurs in three ways: First and most commonly through the gastro-intestinal tract; either with the food or swallowed as dust, the lead is acted upon by the HCl of the stomach and changed into an easily absorbable lead chloride. Second, lead is breathed as dust into the respiratory tract and absorbed from the mucous membrane there. Third, it has been demonstrated that lead can be directly absorbed through the skin, particularly when rubbed into the epithelium through constant handling of the metal or where there is an abrasion of the skin.

Those who handle the metal directly, miners, mixers, painters, etc., should be especially particular as to personal cleanliness. In occupations where lead is used, ample facilities and opportunity should be offered for bathing as well as mere cleansing of the hands. The nails should be kept scrupulously clean and well trimmed. No worker in lead should be allowed to partake of food without first washing the hands carefully. When the metal is heated, the melting pot should be provided with hoods connected with flues which lead to the outside air. Some thought must be given to where the flues lead. The best possible ventilation should be insisted upon. The dust caused by the handling of the lead should be removed. Printers and compositors who handle the lead type should be protected by having the type cleaned by steam very often.

The following case illustrates another type of metal poisoning. Mr. G. W., aged 42, worked in a department of an old factory in which brass was cast into different shapes for various types of machines. The work consisted in heating the metal, pouring it into moulds, smoothing and polishing the resulting cast. The opportunity for infection was offered in three ways; first, the fumes from the molten metal; second, the actual handling of the metal; third, the dust produced in the polishing. The room in which all this work was done was low, poorly lighted and ventilated, and damp. Many days the fumes from the melting pots hung in the damp atmosphere like a cloud. The symptoms of brass poisoning closely simulate those of malaria in many cases. This patient complained of a feeling of depression and langor, with chilliness and actual rigors followed by a rapid rise in temperature, sweating, nausea and vomiting. Blood examination repeatedly made failed to reveal the plasmodium. Brass poisoning, like lead poisoning, results from exposure to and absorption of the metal.

These cases could be avoided if the surroundings in which the brass was handled could be made hygienic. This means the opportunity for personal cleanliness, facilities for removing dust and fumes, and the best possible ventilation.

I wish to illustrate further by quoting a few cases of pulmonary tuberculosis, in which the prominent predisposing factor seemed to my mind to be the occupation. In the last six weeks, I have seen five cases of tuberculosis pulmonis in coal miners. The diagnosis was easily made and proven. It can be said of coal miners as a class, that the occupation is hereditary, fathers, sons, and their sons after them, work in the mines usually because the pay is good and also because it is the only work in the locality. This in itself would lead to a gradual lessening of the vitality in the successive generations. While a coal miner does not have the unspeakable surroundings to live and work in which were previously common, yet in many places in this State, I am told, that the conditions are far from satisfactory.

Better housing, better food, better water and better general outside surroundings have lowered the death rate in miners to a great extent. Some authors claim that coal dust acts against the tuberculosis process. Coal dust has been examined repeatedly and found sterile, which does not prove that it is antagonistic, since it has no germicidal properties. Certainly in every other instance where dust is

breathed to a great extent and the atmosphere is damp and hours are spent without natural light, we would claim such conditions conducive to a lowered resistance. Why not then in coal mining? The fact that the death rate from pulmonary tuberculosis in miners has been lowered in the past fifty years is due to the improved conditions under which the men work, the introduction of air pumps which keep the air in circulation, of electricity as the lighting system.

Two cases, both women, were laundry workers. The work these girls had to do was exhausting in the extreme, not only because of the long hours on the feet, but also because of the high temperature in which they worked. The work consisted in feeding damp linen to hot rollers. The temperature in the immediate vicinity of the machine averaged 90 deg. F. winter and summer. We all appreciate the disagreeable features of laundry work, the heat, the steam, the handling of wet clothes and the opportunity for direct infection. Literature shows the death rate from tuberculosis in laundry workers to be very high, one French author claiming 33½ per cent. The daily exposure to soiled linen must account for this high rate to a certain extent. In my last two cases the element which predisposed was the high temperature which meant a lowered vitality, a constant predisposition to take cold, with a resulting lung irritation which gave the opportunity for sowing the seeds of tuberculosis. Conditions in this occupation have been made better by the introduction of electrical apparatus and the installation of more efficient ventilation.

Stone mason, aged 59, had been suffering for many years with chronic bronchitis. At the time I saw him, he had lost 35 pounds in a little over six months. Patient had the typical signs of chronic ulcerative tuberculosis of the lungs. This is the usual history of stone masons and marble cutters who develop phthisis. They suffer for a long time with the symptoms which accompany a pneumonoconiosis, and finally succumb to a terminal tuberculosis. The irritation of the lung by the dust must furnish a favorable soil for the implantation of the process, because the pneumnoconiosis is rather a fibroid process.

The grand total of the number of persons employed in the manufacturies only, in the State of Ohio, according to the last report of the Bureau of Labor Statistics, is 513,106. The total number of coal operatives is 43,790. Better conditions should certainly be sought for this army of wage earners.

In conclusion, I wish to place before you in a brief way the elements which to my mind, create the undesirable conditions under which our men and women work.

1. Imperfect ventilation, poor light, and poor general surroundings in factories.

2. Absence of means for successfully withdrawing dust from all factories.

3. The imperfect supervision of the workers.

4. Inadequate washing appliances and facilities.

5. Lack of knowledge on the part of workers as to the peculiar menace in their particular occupation.

6. Lack of response by employers to the appeal for better surroundings.

7. Lack of co-operation on the part of the employed to take advantage of the advances made.

No one will gainsay the fact that the future of the commonwealth depends upon the future of the working people. The whole tendency of the age in which we live, is and rightly should be characterized by social and educational schemes to make better the conditions for the people. The hygienic aspect of the situation is the most important, industrial hygiene most neglected. More time and attention should be given to the possibility of removing those features which constantly menace the health and life of the employed. In this work the medical profession should be the leaders. Education of the workers is as important to the ultimate success of any scheme for the betterment of the industrial situation as the making of laws compelling changes. "No matter what legislation we may enact, industrial hygiene will never be secured until the workers themselves are educated in regard to the dangers incidental to particular trades, and are willing to co-operate to make legislation successful."

DISINFECTION AND DISINFECTANTS*

By FRANZ SCHNEIDER, JR.,
Sanitarian to the Department of Surveys and Exhibits of the Russell Sage Foundation

The rise of the science of bacteriology and the development of the germ theory of disease have wrought great changes in the theory and practice of disinfection. Substances and methods formerly held in high repute have been discarded, and opinion has been revised as to the circumstances under which disinfection is desirable. Sanitarians have come to discriminate between conditions which are merely odoriferous, or objectionable from an aesthetic standpoint, and those in which specific infectious disease microbes are present and must be destroyed before they can reach and attack new victims. It is possible, furthermore, with the advances of bacteriological technique to determine quantitatively the relative efficiency of the different methods in vogue.

As a result of such studies, it has developed that disinfectants vary widely in their value, that much depends on the exact manner in which they are used, and that each single substance or method will have widely varying efficiencies depending on the nature of the material to be disinfected. Accordingly it is impossible to pick out any one disinfectant and proclaim it best. Corrosive sublimate, for example, will kill off bacteria in a clear solution as will no other substance, but in the presence of considerable amounts of organic matter is quite useless, and so unsuited to the disinfection of bowel discharges. Steam under fifteen pounds pressure will kill the most resistant organisms with great promptness, but the same process would be ruinous if applied to books. Each problem must be considered on its merits, and an intelligent choice made to fit the special circumstances.

The methods of disinfection from which one may choose fall conveniently under three heads; namely, those depending on the action of high temperatures, such as boiling or baking; those utilizing poisonous gases, such as formaldehyde and sulphur dioxide; and those in which the active agent is a poisonous liquid, such as a solution of carbolic acid. Other agencies of course exist. Sunlight is a powerful disinfectant, and electricity will under certain conditions give some results, but for most practical purposes our three headings are sufficient. In passing it may be remarked that microbes are singularly indifferent to great reductions or increases of atmospheric pressure.

Changing the viewpoint now to the nature of the material to be disinfected, the problems again group themselves into three classes. Regarding the patient always as the central source of infectious material our first group of troubles will arise in disinfecting infected parts of the body, our second in dealing with discharges from these parts, and our third in eliminating infections from things in the environment of the patient, such as clothing, hangings and rugs, furniture, woodwork, and other parts of the sick room. Of these three services the first aims to relieve and aid the sufferer, while the other two are carried out to prevent the spread of the disease to others. The present tendency of preventive medicine is to lay special emphasis on the prompt and thorough disinfection of all infectious discharges.

Efforts to disinfect infected parts of the body, while theoretically attractive, are not attended by very gratifying results. The difficulty is that what is bad for the microbes is bad for the body tissues as well. The introduction of a solution of carbolic acid into a tuberculous lung would doubtless result in a great destruction of tubercle bacilli, but the effect on the lung itself would be equally disastrous. The disinfectant has not been found which will vigorously prosecute its intended function and still not injure the other living matter involved. A certain value attaches, however, to the use of such substances as alcohol and hydrogen peroxide in treating minor cuts and as mouth washes, although they must be used in relatively strong solutions to produce any real disinfection. The probability is that their chief virtue, and that of most proprietary mouth washes, lies in the washing which the infected parts receive.

The substances which combine the greatest disinfection power with the least toxicity to the body tissues are probably

Journal of The Outdoor Life

the coal tar disinfectants. Some of these are, weight for weight, fifteen or twenty times as powerful disinfectants as carbolic acid and are at the same time not nearly so irritating to the skin. Their use is being advocated, in proper dilution, as mouth washes. Before leaving this subject it may be well to reiterate what the surgeon knows,—that the hands or other skin surfaces may be disinfected by thorough scrubbing with German green soap or by the use of corrosive sublimate (bichloride of mercury) dissolved in water one part to one thousand. The use of carbolic acid should be discouraged because of the injurious action on the skin and because of its liability to be taken internally by mistake. The coal tar products will do this work in weaker solutions and with more pleasant results.

Infectious discharges such as those from the nose and throat in the minor contagious diseases and sputum in pulmonary tuberculosis may be conveniently received on cloths and burned. Lacking a fire the cloths may be boiled, or may be thrown into five per cent. solutions of carbolic acid or formalin and allowed to remain there some hours. Sputum may be deposited directly in these solutions, or may be boiled in its initial receptacles. It should be borne in mind that burning and boiling are the safest distinfectants for discharges of this kind. Corrosive sublimate is undesirable because of the large amount of organic matter present.

For bowel discharges and urine, chloride of lime is the cheapest and best disinfectant. The material should be received directly into vessels containing about two quarts of a strong solution of the chloride (a half pound to the gallon) should be mixed thoroughly, and allowed to stand at least a half hour before it is emptied into a sewer or buried. Such a procedure is especially essential in cases of typhoid fever.

Passing to the more or less immediate environment of the patient, methods of gaseous disinfection are usually employed. In theory the room or house to be disinfected is tightly sealed and the poisonous gas generated is then allowed to act for some few hours. Sulphur fumes were at one time highly estimated for this work, but because of their lack of effectiveness and their corrosive action on metal work have been generally discarded in favor of formaldehyde gas. The latter may be generated in several ways,—by distilling the gas from boiling formalin, by spraying formalin (a forty per cent. solution of formaldehyde gas) over sheets, or by distilling paraform—a kind of solidified formaldehyde. In any case the result cannot be effective unless the atmosphere is well saturated with moisture. Perhaps the simplest plan for the layman is to use one of the many reputable paraform outfits.

Experiments have shown that at best gaseous disinfection merely affects the bare surfaces of the objects exposed, and that, as usually performed, it is ineffective. This fact, taken with the diminished emphasis which is being laid on the importance of fomites in spreading infection, has led some authorities to abandon gaseous disinfection altogether in the common contagious diseases. No apparent increase in the prevalence of the diseases seems to have been noted in such cases. If bed linen and the like must be disinfected it is preferable to boil it or soak it in a five per cent. solution of carbolic acid. In diseases like typhoid, cholera, and plague, large infected objects, as mattresses and rugs, must be burned or subjected to steam under pressure in a special form of apparatus known as the autoclave.

In tuberculosis, where the microbes may exist for considerable periods outside the body a thorough disinfection of an infected room is often desirable. Gaseous disinfection is in this case futile. A great deal more will be accomplished by a thorough scrubbing of woodwork and furniture with soap and water and with disinfectant solutions. The coal tar products are especially useful for this purpose, not only because of their germicidal powers, but because of their soapy qualities. Hangings and other fittings such as carpets, rugs, etc., may be boiled, soaked in, or sprayed with carbolic acid solutions, or treated in an autoclave, as circumstances indicate.

A few words may be devoted to quite another class of disinfections, — those directed against insects. Sulphur fumes here hold the palm, although pyrethrum powder is also efficaceous. Specially prepared sulphur candles may be used, or alcohol may be added to ordinary brimstone and the preparation lighted. The

pyrethrum powder should be liberally applied and dusted onto hangings and into cracks and crevices.

Finally the distinction should be drawn between deodorants, antiseptics, and disinfectants. The first named remove or mask an odor without destroying any germ life, the second simply prevent the growth and multiplication of the germs, while the third really kill them. In many cases, however, the difference between antisepsis and disinfection is simply a matter of the concentration of the substance; a weak solution inhibits growth, while a strong solution kills.

More or less satisfactory methods of testing the efficacy of liquid disinfectants have been worked out, a so-called carbolic acid coefficient being determined. This coefficient indicates the relative amount of pure carbolic acid that would be necessary to produce an equivalent disinfecting effect under the conditions of the experiment. A great many of the common proprietary disinfectants have been tested by the government, and the comparative results are given in Hygiene Laboratory Bulletin No. 82, which may be obtained for 10 cents, by applying to the Government Printing Office at Washington.

PLANTS FOR THE ROCK GARDEN

By DR. RACHAEL R. TODD.

In my paper of January on "Rockwork and Plants for the Rock Garden," I named and described a number of plants that are suitable for carpeting quickly and effectively bare surfaces of rock, or rocky ground. Not by any means have I exhausted the list, and before dealing with those plants that may be used successfully in other parts of the rock garden,

Moss Pink or Phlox Sublata.

I will add one or two more to the list of Alpines suitable for the purpose named.

Some Alpines for carpeting: Rose Moss, (ground Pink-Moss Pink); Periwinkle, (Trailing or Ground Myrtle); Mountain Spurge; Woolly Milfoil, (Yarrow, Tansy or Achilla); Thrift (Armenia, or Sea Pink); Stonecrop (Sedum).

Let us deal now with the old-fashioned Moss Pink Phlox sublata). A more valuable plant for general utility, beauty, and hardiness, I think, would be difficult to find. It is the most brilliant carpeter we have, unequalled as a ground cover. In late April and May it sets the garden ablaze with changing tints of white and purple and pink. The thin, wiry stems, with their wealth of narrow, evergreen, sharp-pointed leaves, make a dense maton thick tangled foliage mossy. When the tiny flower appears the whole mass is transformed into solid clumps of color, so entirely does the bloom mask the leaves.

The flowers are borne in profuse clusters, about an inch across, pink, pale blue, white, purple, sometimes spotted, sometimes eyed, standing from two to six inches above the ground.

Along rocky hillsides or steep sloping banks where the sandy soil is well drained, and where the sun falls unhindered, the plant simply grows and spreads before one's very eyes. The plant is a perennial, propagating easily. In fact, it needs but little encouragement to induce it to run wild. There are immense old rugged granite rocks in Central Park, New York,

whose brown faces, scarred and creviced by time are changed from frowns to smiles by these fairy flowers in spring.

The Periwinkle (Dogbane family) is one of the best evergreen ground covers where grass will not grow, under trees and shrubs and on badly drained soil. It creeps and crawls so closely to the stones that the ancients gave the name, Serpents, to the long dark vines. Half-shaded locations suit this creeper best, poor stony ground makes a welcome home, and though the plant seeds rarely, yet this matters little, since the trailing stems root freely at every joint.

Leaves of Vinca or Periwinkle.

The leaves are very dark green, glossy, and opposite, and in the axils of the leaves appear the lovely blue flowers, which are produced very freely all through the long dry summer. "In many old-fashioned gardens where bulbs are not known, the periwinkle is the first spring flower. In city parks and gradens it is known as Vinca. Pliny knew it in Roman times as Pervinca. Why the French call it Flower-of-Mystery is not clear; but the reason of the English name, Joy of the Ground is clear to everyone."

The Woolly Milfoil is the ancient Yarrow, storied in history and in song. It is in reality an European weed, thoroughly naturalized in the North. The typical form was used in that kind of domestic divination of which Scotch and English folk-lore is full. On Midsummer Night a bunch of Yarrow under the pillow, would bring to the sleeper in dreams, the future husband or wife. An old rhyme showing this belief is still extant among the common people of England.

"Thou pretty herb of Venus tree
Thy true name is Yarrow;
Now who my dearest friend shall be,
Pray tell me on the morrow."

The foliage of the Milfoil is thick and feathery, greyish and evergreen. The flower heads are loose corymbs of bright yellow florets from ten to fifteen florets in each. This woolly Yarrow is an oddly attractive little plant, certainly the most useful of all the dwarf species of the Yarrow (whose descendants are legion), as it spreads a thick carpet of handsome deeply-cut, downy-whitened leafage over rockwork and sunny slopes.

The blooming period is exceedingly long, running from early May into late October. It is a perennial seeding itself or increasing rapidly from creeping root stocks, and forming the thickest kind of mat in a remarkably short time.

Pachysandra terminalis is a species of the Mountain Spurge (Order, Euphorb), and is originally from Japan. The Spurge family is one of the most interesting in cultivation, giving us as it does everything in the plant line from a weed to a drug. The family includes annuals and perennials, hardy and tender, herbaceous and shrubby, all with milky juice.

One could hardly believe, looking at the Flowering Spurge a common and uninteresting little weed, that this same weed is closely related to the gorgeous brilliant Poinsetta so carefully grown in our greenhouses; or that it has a first cousin called the Castor-oil Plant; or that a sister plant is the purple ipecac

Flower Head of the Woolly Milfoil.

spurge (Euphorb Ipecac), which will doubtless suggest unpleasant memories of the old-fashioned emetic.

The whole family is most unusual, and even puzzling. Botanists study with eagerness its curiously abnormal inflorescence, which is very abundant and borne in loose flowered umbels, whose stems are full of milky juice.

The especial species, however, that we are dealing with is the Japanese one, which is a true evergreen, with thick glossy foliage forming a dense mat, and

making a most valuable and thoroughly desirable cover or carpeting plant. The flowers are inconspicuous, but rich in nectar, and appear very early. As a ground covering in the shade or in the rock garden or under shrubs or trees, its pale green evergreen foliage with spikes of small white terminal flowers spreads rapidly. The thick mats reach a height of some eight inches and the flowers last about three weeks in May. A pretty combination is obtained by using hardy ferns between the rocks which are hidden beneath the spurge.

And now I come to one of the most dainty little plants that grows, the whole world over. This is the old, old-fashioned Thrift, or Sea Pink, one of a group of low free blooming perennials, native of sea cliffs and mountains, that blooms profusely from early in May until long after the burning winds of midsummer have softened into the autumn haze of November. The very name, Thrift, takes one back to our grandmothers' gardens, where the gorgeous flowers ran rioting through the long deep beds of flaming blooms.

This little plant is a regular tramp, blithely making its home wherever happy chance permits it. All along the east coast of the United States where the great sea marshes stretch far inland and run into the salt meadows, fed by countless brackish streams, various members of the family took root and settled down many years ago. Under the bracing breezes they began to thrive and multiply by countless thousands, until now, one may stand on the edge of the salt marshes that line the Atlantic coast from Maine to Florida, and looking across vast stretches, watch the waves of purpling pink lighten and darken to the touch of the bending winds. Mile after mile glows radiant with their blushing loveliness. It was thought at first, that when they were transplanted away from the sea they would lose some of the deep clear pink from their lovely petals, since it is a well known fact that all flowers show a tendency towards fading under like conditions, but it has not proved to be true, for the very same species have been naturalized in thousands of old gardens, that have never felt the touch of sea breezes.

The name Thrift apparently was given by some observant soul who marked how the little plant, being moved from luxurious surroundings, yet thrives gratefully in the scantiest of soil. Its low habit and tufted foliage makes it especially adapted for rocky or barren places. Its rapid spreading makes it invaluable for sloping, sterile wastes. Its evergreen, sod-like habit makes it useful for borders especially if used in the foreground of taller plants.

And now, the plant itself. What does it look like? Imagine a dense tufted bunch of delicate, grey-green, grass-like foliage, out of which peeps shyly a number of delicate pinkish-violet flowers about an inch across, borne stiffly on clean wiry stems six to ten inches high. Each graceful waving blossom is marked by a pale yellow spot in the centre, and it is this inviting eye which coaxes the wandering insect to a feast of nectar within the fragrant flower.

A good way to begin one's supply is to buy a hundred or so sturdy pot-grown plants. Once they become well rooted they will spread with such rapidity that in a few weeks every plant may be lifted and the root divided. The smallest bit of root re-planted, well watered and cultivated will in a few weeks quite outshine the original plant in hardiness. From my own experience I have learned to increase my stock by sub-division, at least a couple of times each season and obtain bloom also from the new stock provided my new shoots were not too small.

Your first plants will flower early in May and will continue flowering for four or five weeks. They should be constantly cultivated. In fact, as regards my own stock I seldom enter the garden without my little garden fork. With this fork I loosen the earth daily around as many of the plants as I have time for, heeling the earth up well and closely around the clumps. They do love to be cuddled, and will repay all the "fussing" you can bestow on them.

In the fall the clumps should be well mulched, and plenty of straw and leaves heaped about in order to save them through the severe winter. May a time I have almost entirely lost my whole supply through carelessness in this respect. Sea

Pinks are easily winter-killed. Although they are evergreen, they are evergreen in this respect, that if carefully protected through the winter, when the straw and leaves that covered the clumps are removed the leaves will be found firm and well colored. But they must be looked after. I know no plant that will repay the least care, more lavishly than the Sea Pink.

Thrift, or Maritima Armeria.

The Stonecrops (Order Crassul), belong to the oddest and most interesting plant groups in our whole outdoor flora, so varied, too, in character that its different members help to solve a number of garden problems. Although all the species have succulent leaves these are very differently arranged, and show dozens of forms so diverse that they seem entirely unrelated. From the old-fashioned "Live for Ever" (or "pudding bag" as the children call it), to the species known as "Hen and Chickens," seems a far cry; but the whole genus numbers about one hundred and fifty species, almost every one of which is suitable for rock gardens within its special vicinity, all the species are good cover plants, and many bloom abundantly. The flowers are usually small, but are grouped into showy cymes and clusters.

One common characteristic of the Stonecrops is their willingness to grow in any well drained sandy soil. They are both rock-loving and sun-loving, disliking above all things a wet soil in winter. This point is very important.

Sedum acre, the mossy stonecrop, sometimes called the "Wall Peper," is a low spreading moss-like species, not more than three inches high at the most. Its thick masses of early yellow stars make it a favorite for the lowest stones in the rockery, or for pockets in a stone wall.

Sedum pulchellum is the Widow's Cross a species of especial daintiness. The plant is very tiny, only two or three inches high, spreading its stems and leaves over the rocks in the most engaging fashion, with incredible rapidity. The leaves at first bright green, change to rich tones of red and purple, contrasting brightly with the graceful arching pink flowers.

Sedum Spectabile, the brilliant stonecrop, is the most beautiful thing one can imagine. This belongs to the tall stonecrops, and is late blooming. The flowers come out in great flatheads of wonderful rose-colored cymes. This variety should be placed where not a flower is wasted. It is so entrancingly beautiful that one should have a good stock on hand.

The Stonecrops may be propagated by division of the roots, just as the Thrift is divided; or by cuttings, or by seeds. The old-fashioned Hen-and-Chickens propa-

Leaf of Live Forever.

gates itself by offsets and runners. These creep along the rocks until a crevice or crack is found, there the runner takes root and, presently will appear a tiny rosette exactly similar to the parent plant. It is from this habit the name Hen-and-Chickens has been given it.

I cannot longer talk of the Stonecrops, it would require a larger volume to do the

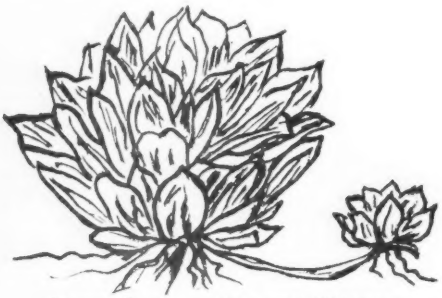
genus justice, suffice it to say that no rockery is complete without a good stock of this plant on hand.

And now we must leave this part of the subject. Sufficient has been said to enable the amateur gardener to find a few suitable and reliable Alpines for the express purpose of hiding all bare spots or clothing rocky places.

Other Rock Plants.

Other plants, however, than these low, spreading "carpeters" are necessary on the rockery.

I have found that a good effect is obtained if plants having lanceolate leaves and fairly upstanding flower stalks are used on the most rugged spots of the rock garden, the spiky effect given by the sharp pointed leaves harmonize well with the sharp edged rocks.



House Leek or Hen-and-Chickens.

Such varieties as the following may be mentioned for this purpose: Iris, spiderwort, lemon lily, yucca, garden pink and gladiolus. Each of these plants is characterized by more or less sword-shaped leaves, which look well jutting up among the rocks, either as individual plants or when used in small clumps. I think that in no other portion of the garden than the rockery is it possible for the gardener to exercise his own ingenuity and individuality for the purpose of producing harmonious or unique effects. By careful selection, good taste, and daily attention many delightful results may be gained. The gardener must ever strive to come as close to Nature as possible, and to do this he must learn to cultivate and develop his powers of observation and forethought. All kinds of unexpected and yet perfectly natural color schemes may be worked out. Pleasing contrasts in outline and perspective can be worked out, without endangering the law of proportion, provided careful selection of plant and situation be watched. For instance, to illustrate what I mean by this last statement, supposing a choice of plants is being made for something suitable to place on the topmost range of the rockery, a low-growing variety, like, say, Arabi or Thrift, would not be the proper thing for such a situation at all.

Either of these plants rarely attain a height of more than ten inches, an ordinary rockery is seldom less than four feet high. Therefore the choice for something to decorate the position in question, should range between plants about two feet tall. Again, in choosing something for the lower layers of rock do not select a plant whose habit of growth will have a tendency to conceal a favorite flower growing on the next highest ranges. Such a case in point would be the planting of Arabis or Myosotis on rocks just above a spot where a clump of Iris has been placed.

Now these may seem unimportant points to an amateur, but they are by no means unimportant. Study the thing out for yourself, and you will agree with what has been pointed out.

Now a word or two in description of the plants mentioned above.

The Spiderwort (Order Commelin), is one of the oldest fashioned flowers in present cultivation. Great clumps are still growing in old deserted gardens, and where the cottages have long since crumbled into ruins. Its history tells that John Tradescant, a gardener of Charles the First of England, first introduced the plant into the royal gardens, at Hampton Court. The seeds had been sent to him by some relative who had immigrated to Virginia. Before long the beautiful thing was blooming on both sides of the Atlantic, bearing the name Tradescantia Virginiana. It has also another name "Job's or Widow's Tears," from a certain characteristic, peculiar to the flower to be explained shortly.

The plant has a beautiful individuality all its own, is very hardy and loves the sun. It is more or less succulent in texture, the jointed stem and linear leaves

suggesting the grasses. The blossoms open out at the top of what looks like an Iris stem; usually two or three are open at the same time; but many more opening buds are clustered thickly between the long, blade-like bracts. The rich dazzling blue—tending to purple—petals, the brilliant orange antlers set upon a cluster of bearded filaments, form a pleasing contrast with the dark green sepals and leaves. These striking flowers are an inch or so across, the three petals are very ephermeral—a mere film of color. Bright and early in the morning the blossom is wide awake, alert, saucy-looking; immediately after the sun has reached his highest point and commences his westward journey, the petals begin to curl slowly,

Spiderwort, or Tradescantia Reflexa.

until, presently they become "dissolved in tears," like Job, or the traditional widow. What was flower a few hours ago, is now a fluid jelly that trickles at a touch. Tomorrow fresh buds will open every every morning for weeks and weeks throughout the long season. (From "Neltj Blanchan.")

This plant cannot help but be a close favorite, especially to those who love blue flowers best. It is pleasant to watch the flower open its blue, blue eyes day after day, so merrily, so blithely, so contentedly.

The plant needs plenty of rich soil, plenty of water, and loves plenty of sun. In the water garden or near the edges of the lily pool it is much at home. Its sharp sword-like leaves look well jutting up between large sharp edged rocks.

The best way to get your stock is to buy some large healthy roots from a reliable nursery man, and then cultivate carefully year by year. Protect well with old leaves or manure when the season for such work arrives, and in the spring divide your roots into smaller clumps, these will soon multiply. Once you have managed to acclimatize your fresh stock to your own garden the plant will take care of itself.

The Iris (Order Irid), has been called the poor man's orchid. Certainly few orchids have more beautiful flowers than those possessed by the Iris, and no one can deny that in grace and dignity the Iris far outranks the Orchid.

The Iris is a flower of history and of song, defied by the ancients, who likened it to the rainbow. In fact the name means a deified rainbow, thus did the ancients show their appreciation for the superb coloring, the ethereal texture and the evanescent beauty of the blossoms.

But it is useless to attempt in the space of a few lines to even begin the description of its classical beauty of structure purity and delicate richness of coloring, and unusually delightful combinations of tints and shades. These are unparalleled among all flowers.

But not these things alone make it so beloved. Its hardiness, adaptability and easiness of culture make the plant one for the masses as well as for the classes. It is quite as much at home in the democratic marshes elbowing its way among its fellows, as if it were not "born in the purple." But this flower of chivalry," says Ruskin, "has a sword for its leaf, and a lily for its heart." The larger species are not so suitable for the rock garden as the smaller ones, because they have been cultivated to such an extend, that there are some immense plants.

The Iris has rhizome roots and evergreen foliage. Nothing odder can be seen anywhere than the root of an old well established clump. As the clump increases it will be noticed that the root has a tendency to rise out of the ground, and become uncovered. This is a signal for the root to be divided.

There are so many specimens on the market that many people have regular collections, including as many of the rarer kinds as possible. Here are one or two good old standbys, especially valuable for the rock garden.

I. Florentina, rich cream and pale butter color. This species is the old fashioned cream flag of our grandmothers' gardens, the powdered root, which gives the fragrant orris root of commerce.

Siberica, deep blue flowers on long stems. This is the old-fashioned favorite blue; it forms dense clumps in a few seasons, a good rockery plant.

The Lemon Lily (Hemeroclavis flava) is the old, old sweet pale butter-colored lily, that comes up straight and stiff and regal out of a dense cluster of broad sword leaves of clean, bright, dark green. Gleaming like golden stars and fragrant with a soft delicate aroma, so subtle, so evanescent, so suggestive of fairies and midsummer night dreams, presents a unique appearance among the rocks.

The best position for a clump of lemon lillies is about one-third of the distance from the top of a fair-sized rockery. Plant a clump of fine leaved ferns behind the lily stalks, and a close carpet of forget-me-not at the foot of the clump—and what a picture to delight the most critical eye.

These day lilies as they are often called are among the most satisfactory of all the herbaceous plants. They will thrive in almost any kind of fairly rich soil, but they prefer a deep rich loam mixed with some warm yellow sand. On the edge of the lilypool, especially if the pool is in connection with the rockery, they make a pretty combination with a cluster of blue flags.

The Lemon Lily belongs to a very hardy family; its twin brother, Hemerocallis fulva, the true day lily, tawny orange has long ago escaped from cultivation, and become a tramp of the roadsides and streams, and many a time have you picked them in your rambles over hill and dale. Lemon lily may become a wanderer by jumping the garden wall and scampering among the meadows any day. It is so hardy one often wonders at its apparent extreme delicacy.

I have mentioned the Carnation Pink among the list of plants with spiky leaves. These plants are especially suitable for small rockeries, planted in individual clumps. These carnation pinks are so well known that a detailed description will be unnecessary here. On account of the number of good points, such as hardiness, profusion of bloom, fragrance, easiness of culture, and long life, no garden can afford to be without some of the different varieties.

The more simple and unpretentious forms, that cover the ground with dense mats of silvery foliage, beautiful even in winter and fill the air in Spring with their scent of cloves and other spicy odors are all good for the rock garden and water pond. Gayest of all are the Chinese pinks and the old, old-fashioned Sweet Williams. Although they will endure neglect without as much as one little grumble, yet, these same little plants quickly show their appreciation and thankfulness when they are given nice warm sandy loam, sunny situations, and plenty of water.

From early May all through the long hot summer, and many of them long into the misty days of Indian Summer bloom away as merrily as the most exacting could demand.

All the Pink plants may be obtained by sowing seeds in early autumn. The following season they are ready early with their store of rich bloom.

These are one or two old favorites that I have worked with for many a long year, and I look upon them as absolutely reliable. They were raised in the first place from seed, and have perpetuated themselves year after year.

Dianthus barbatusis the old Sweet William. Enough said about him.

D. Chinensis is the China or Indian pink, too beautiful to attempt to describe.

D. Deltoides is the shy little Maiden Pink, suitable for the lowest ranges of the rock garden.

D. Plumarius is the sturdy Scotch Pink often called the Pheasant's eye. Nothing in the whole wide world can be found so lovely for the edging of the pool when

used in combination with Myosotis and Arabis Alpina. From its dense mat of silvery blue foliage spring countless tufted stems about a foot high, swaying with every breeze their sweet fringed blossoms.

Plants with flat leaves that are decorative. Such plants are the Columbine, Larkspur, Verbena, Poppy, Calliards, Bleeding-hearts, Primula, all suitable for the situation in question.

Plants with colored foliage—Feverfew, Coleus, Dusty Miller, Begonia, Meadow Rue, Ribbon Grass, Acanthus Mollis, and many others.

Soil for the Rock Garden and for Alpines.

In making up the chief part, that is the body of the rockery with soil, it is generally quite convenient to draw the soil from the surrounding neighborhood. But this may not be good enough to form the nucleus in that it may not be suitable for actual contact with the plants, either on account of its being too heavy and too damp, or because it is very poor and fibreless. This difficulty can be got over by importing a few loads of soil for special surfacing, and especially for the pockets among the stones in which the plants are to be placed, here a mixture of good fibrous loam, with some limestone grit will be helpful. The great majority of Alpines (proper) love to feel a ring of chippings around them.

Planting the Alpines.

Of course one of the main things is to have the bare rocks covered as quickly as possible. To accomplish this, all carpeters should be planted with a free hand. Whole patches of them may be put in at the same time. Care should be taken later on to watch lest these very plants encroach into the pockets and smother out other varieties.

All such as Arabises, Aubretias, Cerastiums, Iberises, Alyssum and many of the Saxifrages are such rapid spreaders that they must be watched daily and kept well within bounds.

Alpines may be planted almost any time of the year as many dealers keep a stock of them in pots ready for casual customers, but planting from the ground may be done any time between autumn and spring, provided the ground may be found workable.

Winter Protection for Alpines.

Alpines will naturally endure a very great deal of cold and severe weather. But there are some varieties, especially those with woolly leaves that are liable to suffer from the wet. An excellent plan is to set small squares of glass above any choice plants. This will throw off the rain. Plenty of chippings around the plant will serve as a preventive of loss from damp.

Exposure, Shade, Light.

While the majority of Alpines love the sun, yet there are some which flourish better in a certain amount of shadow, these are: Anemones, Hepaticas, Campanulas, Primulas, and a few others.

A good scheme is to arrange the rockery so that there are a variety of exposures, but if this cannot be managed readily large clumps of stones may be piled so as to throw off the sun and in this way make shady corners.

Slugs are always a pest in any garden, but in the rock garden they are usually more than troublesome. It will be noticed by the watchful gardener that where the plants are large and coarse, thus throwing a more or less dense shade, the slugs are strongly in evidence. A generous sprinkling of fresh lime, slaked, will prove helpful in keeping these pests in control. Another helpful remedy is a solution of whale oil soap sprayed over every plant on the rocks. To make this solution shave up the soap and use boiling water to dissolve it. About one pound to four gallons of water is given as the proper directions by many books, but for my own part I have found this an entirely too strong solution. I have found that one-quarter of a pound of the soap shaved fine, then dissolved in five gallons of boiling water, to be quite strong enough for the purpose in question. A solution this strength will not harm the most delicate plant. The other strength will simply burn up the leaves of the woolly plants.

DRY CLOSETS

By JAMES S. DUNN, Assoc.,

Borough Sanitary Inspector, Kimberley, South Africa.

Before launching on my subject selected for consideration to-day, it would be an omission on my part did I not welcome the birth of a South African branch of the Royal Sanitary Institute. This important event not having taken place earlier, I do not think a more opportune moment could have been selected than the present, now that the country is opening a fresh volume of its career. The Royal Sanitary Institute has performed a vast amount of solid work in the Old Country during the past thirty years, as can be gleaned from its records, and its present additional effort will undoubtedly mean the dawn of a new era in sanitary progress for South Africa. The work of the new branch will be wonderfully enhanced through the consummation of union. Means will probably be found of bringing members closer together, and in matters of doubt or emergency, and occasions may arise at any moment, I am certain that the union government would place great faith on the result of its deliberations. In my paper now on "Dry Closets," I intend making it my concern to suggest at least one direction to which the branch might devote its energies and that quickly, too, for the question is one that very forcibly affects the welfare of the whole country, perhaps more so than many realize.

It was not without certain misgivings, owing to the fact that so little headway has been made in this direction, that I selected the subject of "Dry Closets" in response to the call for papers on sanitation from the newly-formed branch, and it was only Dr. Jasper Anderson's very cordial support that satisfied me that I could approach it without any qualms.

What are "Dry Closets"? Are they required? I should describe a "Dry Closet" as one so arranged that the solid excrement is kept in as dry a state as possible, not merley by the non-admittance of slop or other waste waters, but also by the separation at the outset of all urine. And as to whether or not they are required I would ask you to consider the unsatisfactory methods, outside a water carriage system, that have to be endured by the ordinary individual. On farms, either a closet of any description is conspicuous by its absence or a cesspit is in vogue into which the solid and liquid excrement is deposited without a thought of evil consequences or any real attempt at reducing its horrible offensiveness. In villages we again find cesspits or perhaps a pail here and there, attended to by the occupants themselves. In the smaller and larger towns we have the pail system controlled in one way or another by the local authority. But all these methods are hideous and frequently nauseous, and practically no headway is being made towards perfection or anything approaching it. A step in the wrong direction would be almost better than no step at all, for the discovery that we were wrong might be the means of enabling us to find the right path. It is true that in the best conducted services the size of the pail has been reduced to a minimum, that possibly removals are being effected every 24 hours, the pails efficiently cleansed and the means of transport beyond complaint. Nevertheless the senses are still offended. Buckets do still overflow, spillings are not altogether unknown, and the work has yet to be done in the dead of night for obvious reasons.

Ninety-seven years ago water closets were invented and from fifteen to twenty years afterwards became general in the better class of houses. They discharged into cesspools at first, the overflow liquid only being allowed to enter the sewers and this custom prevailed for thirty-six years, when, on the 1st January, 1849, the full discharge into sewers was legalized; somewhat slow progress surely. But it is not with water closets that we are dealing, is it? I refer to them merely because I feel it is due to these and the various stages and transitions of the development of domestic drainage that but little attention has been given to the opposite methods. Are they unworthy of consideration or incapable of further improvement?

The converse of the water closet would be a "Dry Closet." Let us have nothing

in between, and see what can be produced in comparison with the pail closet, earth closet or other absorption methods. Undoubtedly the late Dr. Geo. Vivian Poore, although not the actual pioneer, was certainly the great demonstrator of the principles of dry sanitation, and he was able to and did speak with no uncertain voice with the fruits of learning and experience behind him, but perhaps at not quite the happiest moment for the rapid adoption of his advanced ideas. He was undoubtedly an enthusiast, but perfectly convincing, and I have come across no real attempt to contradict any of the principles he so ably advocated.

A suitable example of the principle of a "Dry Closet" would be that of Mr. Chas. Richardson, M. Inst., C.E., the "father" of the Severn Tunnel. This is described in the Journal of the Royal Sanitary Institute of October, 1906, by Mr. A. Wharton Metcalfe, who states: "The conditions of a successful dry closet system are the absence of any depression in which fluid can accumulate and sewage be produced, and a supply of dry sifted earth which exercises a complete disintegrating action on faecal matters and paper; so much so, that if supplied in quantities of from 1 to 1½ lbs. to each stool, a compost is formed after a time (two or three weeks) which is completely deodorized, and can be handled and used over again or used as manure, for which purpose it is valuable."

"The best earths are brick earths, loamy surface soils, dried clay, vegetable mould."

"In the Richardson dry privy the first condition, the absence of a cesspit, is insured by making the catch above ground level, with a slight gradient towards the back, terminating in a heap of dry earth shown in the figure."

With reference to the foregoing, Dr. Poore writes: "The correct principle of dealing with excrement is that laid down by Mr. Richardson. The principle is dryness and thorough exposure to the air; and if the sunlight have access also so much the better. And in reference to the quantity of earth required, I find that Dr. Poore does not quite agree with Mr. Richardson, which is, perhaps, just as well; he states: "The earth under such circumstances is really not necessary and is added more for aesthetic reasons than from any sanitary necessity."

In Kimberley, this method has been in use at the native location with a population of over 8,000, for seven years. Long latrines have been provided; no proper seats, merely a rail. The urine gutters, which are filled with soft wood sawdust, extend the whole length of the latrines, but have an outlet in the middle to allow the surplus to run into a small sump kept filled with dry earth and attended to daily; owing to this, the sawdust requires renewing only once in every three or four months. The solid excrement is removed twice daily and with very little trouble. The maintenance costs about 1/12th that would be required for the bucket system, which would be most unsuitable, bearing in mind the extremely filthy habits of some of the users. One fault we discovered, too late, unfortunately, and that was that the floor of the latrine itself in addition to the floor of the dry catch should have been sloped towards the urine gutter. We had not entirely calculated on the complete indifference that would be exhibited towards our efforts to provide a clean and inoffensive arrangement. But after seven years' working I can think of no better or less offensive system considering all the peculiar and perplexing circumstances.

On the 13th February, 1895, Dr. Poore enunciated his views on "Dry Methods of Sanitation" at a sessional meeting of the Sanitary Institute in London. He admitted that dry methods of sanitation were, in England, where water is plentiful, far from popular and that dwellers in cities want to be rid of matters which have no value for them as individuals, but he asked his audience to consider the question of the best methods of carrying out dry sanitation in circumstances where it is an absolute necessity. He described the change produced in excrement when mixed with earth; how it is humified and changed to something indistinguisable by our senses from ordinary garden mould. He pointed out that for humification, the matter must be tolerably dry and that the access of air was necessary and that our receptacle must be constructed accordingly. This end, he stated, was not attained in an ordinary pail, because all the urine is retained; there is an excess of moisture, and the mixture becomes putrid and

sloppy, unmanageable and offensive. He described the Richardson "dry ditch" as he then called it, and mentioned that with this arrangement no putrefaction takes place, adding: "It is not a matter of much practical moment whether or not earth be thrown into the dry ditch after the excreta, because the arrangement ensures that offensiveness is reduced to a minimum." "With a dry ditch," he goes on to say, "for the lowest class of property and with daily removal of the excreta, the bulk and weight of the excreta is reduced to a minimum; there is no sloppiness or putrefaction; collection and transport are easy and the work is, with suitable tools, not repulsive. If we adopt the estimate of Parkes that the solid excreta average for both sexes and all ages not more than 2½ ozs. per diem, then the household of 5 persons would provide considerably les than 1 lb. weight per diem." He opined that the ill-success of the pail system was in a large measure due to the great weight of the material to be carried, and in consequence of its exceeding foulness, the great distance which it had to be conveyed. He pointed out that, "Any sanitary authority which adopts 'dry methods' should endeavor to arrange for a daily removal. It is only by immediate burial that one gets the full manurial value of the excreta." Superficial burial was insisted upon as being the only way of insuring the oxidation of the excrement and the protection of the wells. He also described at length the result of exhaustive experiments of urine with sawdust and other filtering media.

The result of Dr. Poore's delivery upon the occasion mentioned and of his numerous writings is to be found in the adoption of his principles in various corners of the globe.

Mr. J. Donkin, F.R.I.B.S., of Bournemouth, is an ardent disciple of Dr. Poore, whose principles he endeavors to carry out to the letter. Mr. Donkin writes: "The disadvantages attending the dry system adhere chiefly to its crude and most primitive forms; and it follows naturally that the more it is improved as time advances; the less would be the inconvenience entailed. In either case, however, the principle does admit of any compromise; each system must be drastic and thorough in its own way, or results follow which are experienced in many of the so-called water closets abroad, and earth closets at home, where the receiver in either case holds a compound which is neither fluid enough to travel nor dry enough to crumble, and the process of disposal is rendered as difficult as it is offensive to accomplish. In fact, it cannot be too plainly stated that the smell which generally arises from the ordinary form of earth closet is practically in proportion to the amount of liquid which is allowed to collect in the receptacle provided; thus it will be found to subside when additional earth (or other deodorant) is added; and practically to disappear entirely as a dry condition is reached." . . . "Earth closets which allow the excreta to become mixed, with solids and liquids collected in one receptacle, certainly compromise, if they do not actually destroy, the main feature of the dry system, because the liquids being always in excess of the solids, render the process of absorption practically impossible, and put cleanliness out of the question. Primarily, it cannot be questioned that nature clearly teaches separation, the urine being separately secreted as well as voided, and the main object of a closet of this kind should be to provide the means for assisting and completing this principle in its entirety, and where this is done it will be found that most of the objections to which the dry system has been open in the past will disappear."

Mr. Donkin aims at separation; evaporation of the urine; dry and portable products; no offensive smells, and full manurial value. He explains that a vessel is placed in front for the exclusive reception of the fluid matter, while a separate container is provided behind to receive the solid excreta and the earth, the latter being supplied from a hopper at the back of the seat. It is affirmed that the question of separation offers no difficulty whatever in the case of either sex and by no possibility, with fair usage, can the liquids enter the bucket, or the solids touch the pedestal. . . . The contents leave the bucket practically clean, and without the least smell or offence in any way.

Mr. Donkin has designed apparatus to meet all circumstances, but space will not permit of full details. The urine is allowed to fall into a porous trough, in a

ventilated space beneath the floor, which is supplied with some such material as earth, peat, sawdust, fine coke or carbon. It is explained that it would be a comparatively simple matter to arrange the various parts so that the provision for evaporation shall at least balance or preferably exceed the amount of fluid likely to be admitted.

My apparatus consists of two receptacles, the upper being a square perforated hopper-shaped bucket, suspended upon runners from the underside of the closet seat, and the lower receptacle being a tray to catch and retain the urine; for farm use this tray can be nearly filled with ashes, earth or soft wood sawdust. The perforations in the top bucket I should explain are at the ends only in order to minimize the risk of the solid excrement oozing through. My apparatus can be fixed without structurally altering any ordinary closet. The two receptacles can be removed separately and through the same opening usually provided for the bucket. There is nothing underground, everything is easily seen, if required, and a free circulation of air is assured. No mechanism is introduced liable to get out of order and requiring attention or adjustment; no pipes or complicated parts exist easy to become foul and difficult to cleanse; the different parts can be nested together; the upper receptacle is always in its exact proper position, and close up to the underside of the seat; in the event of the back flap being opened or off, the person using the closet could not be seen, but a back flap is not really required nor a riser in front, then nothing would be hidden away, but everything always open to inspection.

I recommend that all closets should be well lighted and ventilated and the woodwork about and under the seat tarred or painted, otherwise the wood is quickly impregnated with fæcal odors.

In my list of dry closets, O'Brien's should not be omitted. It works most successfully, but being well known in the Cape Peninsula, hardly requires a detailed description.

Separating closets have been used in Christiania and other European capitals, but owing to the fact of being placed indoors and on all floors and the urine being passed through two or three filtering tubs they do not appear to be the sort to be recommended. As regards domestic sanitation, I do not think that we can find much worth learning from the Continent. Neither cleanliness or elegance are strong features.

There appears but little more to be said: Separation in some form or another appears to have been tried for quite a long time, the object being either to exclude the solid excrement from the drains or to facilitate removals or transport. It remained for Mr. Richardson, followed by Dr. Poore, to expound upon the necessity of dryness and the free access of light and air, etc. But, apart from sanitary grounds, I firmly believe that from an economic point of view, enormous savings would be possible, and that owing to the entire freedom of smell, removals by daylight in an urban area would be possible. Just fancy, with our so-called enlightened knowledge pertaining to sewage, having to carry out the most important of our public services under the difficulties and cover of darkness, owing to the appalling stench we create, and calling it sanitation. It is light we want, not darkness, and the light must be focussed on the closets. Again, have not we the wits to give our farmers something better than cesspits or mere buckets, the latter being neglected because even their native servants refuse to handle them? No wonder they prefer the expansive veldt, but how many possible dangers are there, and what is probably one result? You all know the cause and effect of cysticerei cellulosæ in swine. Well, I am told that the late Dr. Hutcheon, chief veterinary surgeon for the Cape, estimated that 60 per cent. of the pigs brought in from the country districts were suffering therefrom. Is it quite impossible to reduce this rate? The remedy, I take it, lies in an earnest attempt to insist upon the erection of suitable closets. They can be quite simple, but they must be "dry." And in this matter, is it also impossible to get at the residents of native locations and native stands? Cannot our newly constituted Provincial Councils provide ways and means? I suggest this course as being more feasible, perhaps, than through the divisional councils. The reports furnished would indicate whether the step was justified or not and what further course should be pursued.

And what about "Dry Closets" in villages and towns? It seems to me such

a pity that when a small municipality decides to adopt a sanitary service that they apply to a large town for information and blindly adopt the method there in use; it does not follow that the system found desirable for a big municipality is either desirable or necessary for a smaller community. Consider the latter for a moment: its convenient size and scattered outskirts. Removals of nightsoil have, say, been made compulsory. It is only necessary to separate the solid from the liquid excrement in a proper manner and, owing to the reduction of offensiveness, removals could be effected during daylight, the matter disposed of much nearer home and the cost of maintaining the service, considerably reduced. As towns become larger, difficulties certainly increase, and, especially, in the matter of slop-water removal, but until a water carriage system solves the problem, there is no reason why the solid excrement should not be separately conserved and removed and the urine also separately removed or otherwise dealt with. Experiments in order to ascertain the best means of doing this would mean but a trifling outlay, and the results should prove most helpful. I was struck, when reading an article of Chinese hygiene by Dr. Arthur Stanley, M.D., D.P.H., Health Officer of Shanghai. He writes: "It is in the disposal of refuse that modern hygiene has the least to teach and the most to learn from the Chinaman. The principle of returning ordure and garbage to the soil is the only true and economical one. By this means alone can the energy residing in the soil be conserved. The water carriage of sewage and its most modern treatment in mass by bacteriological methods is a crude imperfection when compared with the Chinese method of returning all refuse to mother earth, which it replenishes, and is at the same time purified by the most complete bacteriological processes. The upper layer of the soil is the universal purifier; it is here that the nitrifying and other organisms reside which convert organic refuse into inorganic plant food." "The main problem of sanitation is to cleanse the dwelling day by day, and if this can be done at a profit so much the better. The Chinese solved the question of economic sanitation long ago. While the ultra-civilized European elaborates destructors for burning garbage at a financial loss and turns sewage into the sea, and also frequently into the water he drinks, the Chinaman converts each into a source of profit by using them for manure. He wastes nothing, while the sacred duty of agriculture is uppermost in his mind."

In conclusion, I trust that my compilation will be deemed of sufficient importance for the consideration of our new branch. My remarks have been shortened, but not, I hope, at the sacrifice of the subject which, to my mind, is one of pre-eminence.

DUST PREVENTION BY THE USE OF PALLIATIVES*

By ARTHUR H. BLANCHARD, M. AM. SOC. C. E.

Professor of Highway Engineering in Columbia University, and Consulting Engineer, New York City.

Before considering the effects of dust and the methods of alleviating the nuisance caused by its presence, a study of the sources from which street dust arises may be of interest.

A self-evident source of dust is the mechanical abrasion by traffic of the road or street surface. It is manifest that the degree of abrasion will depend upon the amount and nature of the traffic, the kind of material used and the method of construction and maintenance employed. Other sources of street dust depending upon traffic are the deposition of dirt which has adhered to the wheels of vehicles coming from adjacent earth, gravel or macadam streets, from the leakage of the contents of loaded vehicles both in transit and while loading and unloading, and from the excrement of animals.

All street dust is by no means the result of traffic. In sections where shade trees are common, a source of dust is to be found in the decay of twigs, bark and leaves, while pollen, seeds and spores of various plants are further sources. Mineral matter applied to certain street surfaces to prevent slipperiness is a constant

*From the American City

source of dust. Dust resulting from manufacturing enterprises frequently forms a very considerable part of street dust. Mills where pulverizing is carried on, textile establishments and foundries, are prolific sources of dust, while soot and fine ashes from chimneys find their way to the streets. From the nature of these sources it is apparent that the composition of street dust is extremely varied and complex.

Dust an Enemy to the Public Welfare.

Aside from its pathogenic effects, other ways in which dust acts as an enemy to the public welfare are as follows: The formation of heavy dust clouds by the traffic to such an extent as to obscure a view of the travelled way; when wet, the formation of mud, which may cause skidding of wheels and dangerous footing for both man and beast; its action as an abrasive agent upon certain surfaces; the lowering in real estate values where occurring in exceptional quantities; its harmful effect on plant life.

The pathogenic effects of dust have been given extensive study by the medical profession. From what has been said relative to the sources of dust, it is obvious that it is made up of organic and inorganic matter. If germ cultures are prepared from air, bacteria life of different kinds will be found present in quantities which are sometimes startling. Although it is very commonly believed that street dust is full of tuberculosis germs, many bacteriologists are not positive on this point. Dr. T. Mitchell Prudden states:

"It is certain that out of doors, in the country, and also in cities whose streets are kept decently clean, there is less danger of harm from the inhalation of germs of consumption or of any other disease, because the constant purifying agency of wind and air currents will either soon sweep away the dust or so largely dilute it that it will be practically free from disease germs, the sources of which are so comparatively limited. If, however, the streets of cities be or are allowed to remain filthy, so that abundant and pretty constant dust clouds are encountered by those passing through them; if the streets are not properly sprinkled before sweeping, either by machine or hand; if ignorant or careless street cleaners are allowed to scatter clouds of dust about them as they sweep or shovel or transport the pulverized filth, the chances of inhalation of dangerous dust particles are proportionally increased. But, on the whole, the risk of infection out of doors from dust, even in crowded towns, unless they are notably filthy, is not actually very great."

Dust, however, may enhance the contraction of tuberculosis even though it contains no tubercle bacilli. The constant inhalation of dust will irritate the pulmonary organs so as to render them more susceptible to the attack of the tubercle bacilli which are frequently lodged in the mucous membranes of healthy individuals. Various delicate membranes are irritated by the simple mechanical action of the dust, resulting not only in local inconvenience, but many times in general debility. The membranes of the respiratory organs are susceptible to this influence, especially if a person be asthmatic. The membranes of the eye are also frequently seriously irritated by dust. In the sections where the dust problem has been successfully solved, physicians report a marked falling off in the number of cases of conjunctivitis.

The Problem on Heavy Traffic Streets.

In considering the problem of dust prevention on city streets, it is advisable to classify the public ways under two general heads, business and residential streets, and to further differentiate between residential streets, which are narrow, heavily shaded with trees and bordered with residences and those streets which are more or less open.

There is one way, and only one way, to satisfactorily prevent dust on bituminous, cement-concrete, brick, wood block and stone block pavements which are subjected to excessive horse-drawn vehicle traffic. That method consists of removing the dung of animals and other street refuse by hand sweeping, during the day; mechanical sweeping of the streets at night, which should be preceded by sprinkling, and finally flushing with water to remove fine dust and thoroughly cleanse the surface of the pavement. Under certain conditions, dependent upon the amount and

character of traffic and the uses to which the street is subjected, it is feasible to omit the mechanical sweeping. It must be realized that it is absolutely impossible to economically remove fine dust by either hand or mechanical sweeping. The use of the so-called dust palliatives and surface treatments on pavements subjected to heavy mixed traffic is entirely wrong in principle; for sanitary conditions require the constant removal of filth from streets and, if this is removed periodically by flushing, the effectiveness of these processes is curtailed. Again, periodically watering of pavements to lay dust throughout the day is fundamentally wrong, as the fine dust which necessitates sprinkling should have been removed.

However, bituminous, cement-concrete, brick and wood block pavements may be used on streets subjected primarily to motor car traffic and light horse-drawn vehicle traffic, such as boulevards, open intra-urban trunk lines, etc. In such cases flushing is not necessarily a prerequisite to cleanliness. Generally patrol hand sweeping throughout the day will be sufficient.

Where Palliatives Must Be Used.

Residential streets may be built with bituminous surfaces or as bituminous pavements, dependent upon local conditions. On this class of street the traffic is usually comparatively light from the standpoint of city traffic. If such streets have a surface coat of the proper kind of asphaltic material, the dung of animals and other refuse can be removed by patrol hand sweeping, while the nature of the surface will be such as to absorb fine dust and render the street practically dustless. For macadam streets in poor condition for bituminous superficial treatments, or when financial conditions do not render expedient the use of bituminous surface treatments and patrol sweeping, recourse must be had to the use of palliatives. To attain successful results it is necessary that light products having the proper chemical and physical properties should be used in small amounts periodically during the season of dust. In slum residential districts the streets—unless subjected to heavy horse-drawn vehicle traffic—should, provided grades will permit, be constructed of water-bound macadam with a superficial coat of refined tar, or as bituminous pavements with a seal coat of refined tar. The gradient, however, may require the use of an asphaltic-tar compound or an asphalt for the superficial or seal coat. These forms of construction will give a sanitary surface, one from which excess dirt, dung of animals and refuse can easily be removed by patrol hand sweeping and which during the night, can be thoroughly cleansed by flushing. It should be noted that the nightly flushing with water will add materially to the comfort of the people by perceptible cooling of the atmosphere during hot summer nights.

It is evident that the field of usefulness of palliatives is somewhat limited and that this field will grow comparatively smaller in the future as the mileage of good roads and pavements increases, as the economics of construction and maintenance is understood and as the inherent value of the various methods for the elimination of dust is recognized. As an example of the tendencies outlined, may be cited the several yardages of bituminous surfaces and light oil applications as constructed during 1910 and 1911 under the state highway departments of Maine, New Hampshire, Massachusetts, Rhode Island, New Yorn, New Jersey, Pennsylvania and Maryland. While in 1910, 9,890,400 sq. yards were treated with light oils, the yardage was reduced in 1911 to 3,765,200. On the other hand, while 2,557,600 square yards of bituminous surfaces were constructed in 1910, the total was notably increased to 8,414,100 in 1911.

European Practice.

European engineers appear to appreciate the true value of palliatives, as at both the First International Road Congress, held in Paris in 1908, and at the Second Congress, held in Brussels in 1910, conclusions were adopted to the effect "that emulsions of tars or oils, hygroscopic salts, etc., are really efficient, but, unfortunately, only for a short time. Therefore, their use should be limited to special cases, such as race courses, festivals, processions, etc." In this connection it should be noted that the mileage of roads or streets which are not in a condition suitable for bituminous surfaces is small.

In Europe, however, attention to esthetics has resulted in the use of palliatives

where otherwise bituminous surfaces would have been employed. Two illustrative examples will be cited. At the birthplace of the campaign against dust by the use of superficial tarring, namely, in the Principality of Monaco, ordinary watering is used to lay the dust on the boulevards surrounding the beautiful gardens in front of the Monte Carlo Casino. The watering of these surfaces once per hour in the most scientific manner, the writer has observed, serves to lay the dust, cool the atmosphere, and furnish a road surface which is in harmony with its magnificent environments.

The other instance to be cited is the case of the Bois de Boulogne, which is adjacent to the City of Paris. Its engineer, although allowing one of the avenues to the race course, Longchamps, to be tar-coated for experimental purposes, is a firm believer in the use of palliatives for the boulevards of the Bois, inasmuch as the surfaces thus treated are satisfactory from the standpoint of esthetics, and at the same time dustless. The problem of the maintenance of the many miles of these charming avenues is an extremely complicated one, which has not as yet been solved. The avenues in many cases are subjected to traffic which will rapidly disintegrate ordinary macadam treated with any of the palliatives at present on the European market.

A Classification of Dust Preventives.

Dust preventives in common use, which may be classified as palliatives, that is, those requiring application with more or less frequency, include water, sea water, salt solutions, calcium chloride, tar and oil emulsions and certain light oils and tars. As oils and tars are mentioned in the above classification, the distinction between treatments with palliatives and the construction of bituminous surfaces should be borne in mind. Palliatives are those which mitigate, alleviate or abate the dust nuisance; while bituminous surfaces consist of superficial coats of bituminous materials with or without the addition of stone or slag chips, gravel, sand, or materials of a similar character. While it is true that the continued reapplication of light asphaltic oils and tars may form a bituminous surface, the methods of construction considered under this latter title will be confined to those treatments which ordinarily result in a bituminous surface, efficacious for at least one year.

Water.—That water is an efficacious dust layer when properly applied is admitted by those familiar with European practice, especially where this work is generally under the direction of engineers who supervise the details of the methods of application rather than depend upon the whimsical ideas of ignorant and irresponsible drivers of watering carts. From an economical standpoint, and when considered from the viewpoint of a road binder, the use of water is limited. It has been demonstrated by many service tests that watering, even when most scientifically administered, will not preserve macadam roads when the traffic consists of rapidly moving motor cars.

Sea Water.—The use of salt water obtained from the sea has not been developed sufficiently to establish its value and rating as a dust palliative. It has been tried in a number of instances in coast towns and cities, usually being applied with the ordinary watering cart. In one instance it was found that, in dry weather, it formed a hard, salty scale, while in wet weather the mud contained so much salt that it injured the iron and varnish of vehicles John A. Brodie, City Engineer of Liverpool, in 1911, stated that:

"At Blackpool sea water is used almost exclusively for street watering, as it is found that sea water is about three times as effective in preventing dust as fresh water, and, if properly applied, has no injurious effects on the road surfaces. The Blackpool practice is really to wash (not sprinkle) the surface of all the principal streets, both horse and manual brushes being freely used in removing all loose matter from the street surfaces and washing them into the street gullies. A further annual cost of about $45 per mile of streets is incurred in street watering only."

Calcium Chloride.—This material is a by-product in the ammonia-soda process of manufacturing common washing soda and in other industrial processes. It is shipped in granulated form in air-tight steel drums. Calcium Chloride is used in two ways in connection with dust-laying on roads. First, by the "wet" method, and second, by the "dry" method. When applied dry to the road surface, a special

distributing apparatus should be employed. About 1½ pounds should be used for an application per square yard. Usually two applications per season in the North will give good results. When applied wet, it is recommended that the calcium chloride should be dissolved at the rate of 1 pound to 1 gallon of water, using about one-third of a gallon of solution per square yard. For the application of the solution, ordinary watering carts are generally used. The usual method is to distribute in two applications along the center of the street and one at the sides. To secure freedom from dust about ten applications should be used per season in northern states.

The most scientific work which has been done with calcium chloride is that carried on by a Committee of Judges of the Roards Improvement Association of England in 1909 and 1910. After exhaustive experiments the following conclusions were deduced in the fall of 1909 and the spring of 1910 respectively:

"We are of opinion that the results of the tests of calcium chloride applied in granular form by the 'dry' method have shown that it is a very effective dust layer and, provided no ill effects are experienced in winter as a consequence of the treatment, we are of opinion it is a cheaper and preferable process to that of street watering, which, as now carried out, is undoubtedly very injurious to macadammized roads; . . . that the treatment has the ill effects of causing, during the winter months, an abnormal quantity of sticky mud, a decided tendency to licking up, and a disintegrating action upon the macadam surface. Notwithstanding this, we are of opinion that the process is probably not more injurious to macadamized roads than the excessive watering now demanded by the public effectively to lay the dust."

Emulsions.—Palliatives belonging to this class are made by the addition of some saponifying agent to water, which, forming a chemical solution, renders it readily miscible with the oil. They sometimes contain a deliquescent material as an aid in retaining moisture. Their use is common where a light palliative is sought. Alkalies such as potash, soda, ammonia, crude carbolic acid and various soap solutions are the mediums most commonly used with asphaltic or parrafin oils. Among the numerous processes are: casein added to tar oil; water lyes from wool pulp factories; fat or grease from wool scourings, emulsified with either deliquescent salt solutions or creosote; an oil emulsion containing a deliquescent salt; waste sulphite cellulose liquor; waste-molasses solutions, and mixtures of saccharine and lime. Tar emulsions are used to a small extent in this country. Distribution is usually made with an ordinary watering cart on the unprepared surface, although better results may be obtained by using some type of pressure distributor. In one place a light sand coat was added, but as a rule the surface is left uncovered.

Light Oils and Light Tars.—In this group of palliatives may be included certain vegetable oils, paraffin and asphaltic petroleums, tar oils, water gas tars, coal gas tars, and a large variety of proprietary compounds. Light oils were employed in 1898 in Los Angeles and Algiers for the purpose of laying the dust. Their use has developed rapidly in America, due to the large supply available, while, as the price of oil is comparatively high in Europe, very little oil has been used.

The tendency in Europe has been, for the past five years, to discard all types of palliatives, so that only a small amount of what is known as light tar is employed, the practice being to construct bituminous surfaces which will be efficacious for at least a year. There is sometimes enough binding base to cement the particles; and such materials are preferable, as a number of applications result in an accumulation of binding material at the end of a season. They are fairly efficient, but should not be applied in too great an amount, as a soft, greasy surface will result. Heavy rains may either cause washing or an oily, disagreeable mud and pools of oily water. For reasons of economy the material is usually applied cold, using ordinary sprinkler carts or distributors, of either gravity or pressure type.

In order that this class of palliatives should be distributed economically and satisfactorily, pressure distributors should be used which are equipped with suitable hoods to protect pedestrians and property from the attendant fine spray, and which are capable of distributing the material

in as small amounts as ⅛ of a gallon per square yard. If this method of distribution was employed, few would be the complaints of ruination of clothes and house furnishings, filthy streets and disagreeable odors.

It has been claimed in some quarters that by the use of light oils, macadam roads could be preserved under high speed motor-car traffic. This fallacy has caused a large waste of public funds in many cases, since the macadam has not only begun to disintegrate within two to three weeks after the application of the oil, although the effectiveness of the application as a dust-layer was apparent for six weeks, but the road surface was left wholly unprotected during the trying winter and spring months. If properly applied, light oils are effective for about six weeks, but to apply them after November first in the northern states is to assure muddy, greasy surfaces during a part of the winter.

Although there is a large variety of proprietary palliatives on the market, they will not require special consideration in this article, since the fundamental principles underlying the use of palliatives have been fully covered in the foregoing discussion.

FOOT AND MOUTH DISEASE

By D. GEORGE COLLINS, Chairman, City of London Cattle Markets Committee.

Food Inspector, Toronto.

This dread cattle-scourge has been known from time immemorial. During the last fifty years official action has been successfully combating it and gradually reducing its operations. Judging by experience and the onward course of research, it is highly probable that ere long it will be as effectually dealt with as many other diseases have been.

Its origin and means of dissemination are uncertain. Animals subjected to close contact with the disease have been known not to develop it. Animals in no suspected way in contact with it have with incredible facility exhibited the disease in its most virulent form.

The report of the Department Commission appointed to inquire into Foot and Mouth Disease states, "There is but little exact knowledge, even among the greatest veterinary experts, as to the nature, origin and means of transmission of this disease."

In the early seventies markets were opened in London, Belfast, Cardiff, Dundee, Plymouth, Falmouth, Granton, Grimsby, Glasgow, Harwich, Hull, Leith, Liverpool, Newcastle, Portsmouth, Southampton and Barrow under the Contagious Diseases of Animals Act, 1869, for the reception, sale and slaughter of animals from countries where foot and mouth disease was known or suspected to exist. Prior to this practically free entry had been given to all animals. By Parliament thus scheduling the complaint as a disease, and limiting the ports of entry, the first step was taken to supervise and check the importation of known or suspected disease, to control the trade, and stamp out the scourge.

In 1892 compulsory slaughter was first resorted to by the Board of Agriculture as a means of stamping out the disease.

In 1893 a new Act was passed restricting the uses of these markets to the importation of live animals from only those countries which were declared free of foot and mouth disease, thus precisely reversing the policy for which the markets were specially built and equipped.

In 1900, these markets were closed against South American animals, owing to an outbreak in nine English counties, involving twenty-one cases.

In 1903, the markets were reopened to South America for three months, and on official proof that that country was still infected, the permission order was withdrawn, and since that date all British ports have been closed to South American stock.

Editorial

Sanitarium, Sanatorium, Sanatarium or Sanitorium.

A correspondent calls our attention to an error in the April number of the Public Health Journal where the word sanatarium was used in a heading. We thank our correspondent for his interest in this matter and would like to point out a further error in the same issue of the Journal where sanitoria was used in another heading. So it would appear that a great deal of juggling has been done with the four words which appear above. With such a text, it ought at least to be possible to present this subject in such a way that it will lead to the universal usage of one word and one only instead of the misusage of several. At the outset let us remind our readers that there are no such words recognized as sanatarium and sanitorium so that they at least should never escape the proof reader and be allowed a position on the printed page. The other two words are in common use and we might well study the real meaning of each.

Sanatorium—Plural L.ia, Eng. iums. L. neut. of sanatorius—giving health, from sanare, to heal. A health resort; a locality selected as a retreat because of its salubrity; an establishment for the treatment of the sick especially one that makes use of natural therapeutic agents or local conditions or that employs some specific treatment or that treats particular diseases.

Sanitarium—Plural L.ia, Eng. iums. L. Sanitas—health. A health station or retreat, a sanatorium; sometimes restricted to an establishment where the treatment is wholly or almost wholly prophylactic and distinguished from a sanatorium.

After studying these definitions carefully, we fail to see, despite the fact that there is a slight difference in their meanings, why we should cumber the English language with two separate words which mean almost the same thing and which are spelled so nearly alike. They remind us of twins, who when together may be distinguished, but when apart it is not given to anyone to remember which is which. We would suggest that the medical profession and all those interested should use one word and one alone, sanatorium, plural sanatoria.

Dr. Friedmann and His Cure.

Dr. Friedman has been here again. The profession is somewhat apathetic as regards the results obtained so far. Some will say nothing, others are discreetly silent, while some appear to believe that good will result. During his first visit in March he was neither accepted nor condemned by the profession, and was plainly told that they were willing to see all he had to show. He stated that in most cases two or even three injections were necessary to obtain the desired result. He will be given yet another chance. If he fails in this his press agents will howl from the mountain tops of the unfairness of the medical profession in Canada and will forthwith proceed to establish institutes throughout the country for the exploitation of this turtle cure. If he succeeds the medical profession will bestow upon him every honor and consideration within their power.

"Social Hygiene."

Speaking of John D. Rockefeller Jr., the New York "Times" remarks of his Social Hygiene bureau directed against prostitution and the "social evil," that "the community cannot fail to recognize that the hopeful significance of this extraordinary enterprise lies largely in the fact that it has enlisted the efficient support of a young man distinguished not only for his resources and associations, but for personal energy and ability of a very high order." That the next John D. is a man of great ability is cheerful news. He has started an important movement in his bureau of investigation into phases of the so-called social evil, an evil so deep seat-

ed and so far reaching and producing such frightful results, that society is beginning to appreciate the pressing duty of dealing with it adequately, instead of blinking it entirely. This looms up as one of the largest undertakings that society has ever tackled, with ramifications in a number of directions. It affects the problem of marriage regulation, for one thing, and of school training for another, and a complete change in the popular and hereditary view of the subject. It has sanitary aspects, as well as physical, moral and commercial. But in many directions at once there are evidences that the State is going to tackle the "social evil" in good earnest. John D. Rockefeller Jr. gives prestige to the movement at the start by offering large financial support.

The Vacation Season and Health Resorts.

The hot weather of the past few days reminds us that one will soon be seeking some place in which to replenish one's stock of energy.

The sanitary conditions of camps or resorts are in the majority of cases far from what they should be, though there has been a big improvement during the past few years. Typhoid fever is the greatest danger as the infection can be carried in the milk and water supplied. Many health resorts include in their literature statements as to the sanitary conditions. Before engaging accommodation one would be wise to ask about the source of the milk supply, if the cows are tuberculin tested, if the milk is pasteurized; ask if the water has been examined by a competent bacteriologist, and if so to send you the report. Ask about flies. If the ordinary house fly inhabits the dining room and kitchens or is found around the place in numbers you can rest assured the place is not clean. Flies and cockroaches are two great purveyors of disease.

On the other hand the guest can assist very considerably in keeping the resort clean by not throwing cores of apples, banana skins, orange peel, etc., about the grounds. If you are camping dig a latrine in which all the slop, waste, dish water, etc., may be thrown, and which should be covered each day with some of the earth previously dug out. Always remember that some one may occupy the same place after you. Lastly, bear in mind that in Ontario the Provincial Board of Health will this summer camp on your trail. Ontario resorts will be made sanitary alright, but it requires a little time.

The Fly and Spring.

Beautiful spring is at hand and all are looking forward to the pleasures that it brings, but our exuberant spirits are somewhat sobered when we recall that spring brings us the pesky fly which pesters us by its biting and its buzzing about our ears. The fly has been convicted of the capital offence of transmitting disease; the stable fly has been shown to transmit poliomyelitis or infantile paralysis, as it is better known to the ordinary citizen, which often cripples for life those who do not succumb to the infection.

The fly is essentially a scavenger, ordained by nature to clear up filth, and exists where filth is allowed to accumulate; therefore it is the duty of all good citizens to endeavor to prevent the piling up of rubbish heaps which usually contain more or less putrid material, and the accumulation of piles of manure or other refuse unless the same is thoroughly treated with some disinfectant that will prevent the breeding the flies.

Garbage should be placed in covered receptacles, preferably made of tin, galvanized iron or other metal, as this will not only militate against the breeding of flies, but will discourage that other enemy of man, the long-tailed rat which so frequently builds its nest in close proximity to a garbage pail in order to avoid trouble in securing the provender necessary to sustain its life. Clean-up weeks were instituted in many municipalities last year, and a number of people continued the clean-up all year, but others became indolent during the winter months, allowing manure piles and rubbish heaps to grow. The time has now arrived to urge those who are inclined to be slothful and negligent to wake up and place their surroundings in as sanitary a condition as possible before the warmer weather permits the flies and other insects to increase and multiply to spread the germs of typhoid fever and other diseases broadcast.

Forecast and Review

Housing and Tuberculosis.

At last week's meeting of the Glasgow City Council an influential deputation was received from the Royal Faculty of Physicians and Surgeons on the subject of the housing problem and the treatment of consumptives on their return from sanatoria. The deputation was preceded by the Faculty mace, and the members appeared in their robes.

The deputation, having been introduced, Dr. Adam, the president, said the Faculty had lasted for over 300 years, and one of the rights of their charter was that of watching over the interest of the poor. The Faculty had been very much concerned lately regarding the question of tuberculosis, the question of better housing, and the question of clearing out slum properties. They had held a number of meetings. They came in no carping spirit, not to criticise, not to find blame, but to try to support the Corporation in the effort they were making to deal with a very difficult subject, and, if possible, to get those properties swept away at any cost; for he was sure, whatever the cost, it would repay them a hundredfold.

Professor Glaister said that he had been charged to bring before the corporation two resolutions passed by the Royal Faculty of Physicians. The first read: "That the Faculty have learned with satisfaction of the action already taken by the Corporation of Glasgow in closing houses and tenements in the slums of Glasgow, which are the breeding places of consumption, and, while appreciating the difficulties in achieving rapidly the end in view, would urge the coporation to prosecute the same with vigor, in the best interests of the citizens of Glasgow; and also to provide for the housing of the displaced families." They all knew that, owing to the absence or deficiency of building regulations in the past, the housing conditions of Glasgow gradually evolved themselves through different centuries, with the result that they had conditions existing in the city which were not consonant with the public health requirements of to-day. These conditions had been bequeathed to them, and they must be gradually removed before they brought the city up to the conditions they all desired. The slum was not merely constituted of broken-down houses, but also of broken-down people; and, as a matter of fact, the second problem was more difficult to deal with than the former. That problem must be left to the corporation. So far as the slums were concerned, they were a menace to the health of the city in more ways than one. Several of their most serious epidemics had arisen from the conditions of the slums, and it would be only fair, even by means of rating, that the citizens should take part in the removal of those conditions. The second resolution he had to read was: "The Faculty are also of opinion that the Corporation of Glasgow should provide suitable hospital accommodation for the more advanced and incurable cases of consumption, these probably being the most active sources of infection." They know from their medical experience that tuberculosis was spread among members of families by the imperfect housing conditions in which they lived. They therefore thought that when cases were so far advanced as to be incurable a home should be provided by the corporation for the sufferers, with such provisions for the visitation of friends as the corporation might arrange.

Dr. Ebenezer Duncan said he thought the question of the prevention of consumption was largely a housing question. He believed the great progress made in the last 30 years in the diminution of consumption had been largely due to two causes. In the first place, there was the great vigor with which sanitary measures had been carried out by all the civilized countries. He found that Glasgow had made just as much progress as Berlin and New York had done. There were 2,000 deaths from tuberculosis per million every year. Dr. Duncan read the third recommendation, which was: "That in view of the rapidly accumulating experience regarding the disheartening results which follow the return of sanatorium patients to their own surroundings when these are unsuitable, the Faculty would suggest that the Corpor-

ation should provide houses structurally adapted for the home treatment of consumption." Those who had experience of sanatoria knew that a large number of patients were sent out who seemed to have the disease arrested—they did not speak nowadays about cured—and if they were able to carry on for some time the treatment they had received from the sanitorium a very considerable number of them would no doubt become well. Their experience was that when these people went back to unsuitable surroundings they invariably died. All they did in their treatment in the sanatorium was to prolong the agony. They found the conditions of at least half of the population of the city were such that it was quite impossible to deal in a sanitary manner with the consumptives when they returned home. He thought it was high time the corporation should take up the matter from that point of view, and give sufficient healthy accommodation for those poor patients who returned from sanatoria partially cured. There were two ways of doing that. One way had been suggested by the Local Government Board, and that was to have night hospitals where patients coming back from sanatoria might sleep and go to their work from. The other way was that adopted in Berlin, where the central health authority gave a grant to the patient so that he might have an extra room in which to carry out the treatment and be separated from his family. He was not going to suggest which of these ways was the better. He thought himself, and Dr. Chalmers seemed to think, that an extra room might be provided in a sanitary quarter of the city. Dr. Duncan also submitted the fourth recommendation, which was that, owing to the uncleanly condition of the houses of the poorest classes, owners of these should be encouraged to provide caretakers in order to improve the standard of living. He thought the caretakers should be provided with compulsory powers to insist on the houses being kept in a cleanly condition.

The Lord Provost said he would have the authority of his colleagues for saying that sympathetic consideration would be given to the representations they had made, and he thought they might also add they were grateful that such an influential institution as the Royal Faculty of Physicians and Surgeons should have thought fit to send a deputation and to assure the corporation of their co-operation. They might depend upon it, in dealing with this great question, the corporation would very gladly remember what they had put before them. With regard to the second proposition, that of providing suitable hospital accommodation for the more advanced and incurable cases, he might mention that plans had been before the Local Government Board for some time, and therefore they were not, as they seemed to be, neglecting what the deputation wished them to do.

The thanks of the deputation were conveyed to the corporation by Dr. Knox.

After the deputation had withdrawn it was decided to print the resolution in the agenda for next meeting, and come then to a decision on the matter.—The Medical Officer.

Still After the Fly.

It is now proposed to make the anti-fly campaign international in its scope; in other words, to secure the organized co-operation of as many nations as possible and make a grand, united onslaught against the pestiferous and mischievous insect that is so dangerous to human health. Much has already been said of the fly's pernicious activity as a carrier of disease germs, but the scientists continue to amplify their charges against the fly and they insist "the half has not yet been told." It has been scientifically demonstrated for instance, that the fly is able to convey not merely the germs of typhoid and infantile cholera, but also those of Asiatic cholera, diphtheria, anthrax, tuberculosis and other deadly maladies, and that it is able to keep these germs alive and lethal in its system for many days after acquiring them.

In the case of typhoid fever, it has repeatedly been shown that there is an exact correspondence between the prevalence of flies and the prevalence of the fever in epidemics. Still more marked is that correspondence in the case of infantile diarrhœa, a disease occurring only in fly-time and almost invariably increasing and decreasing as the number of flies increases and decreases. Similar circumstances have been observed, particularly in Australia, in relation to other enteric disorders. There is no room for reasonable doubt, therefore,

that flies are largely responsible for the spread of these diseases, though, of course, not as exclusively as mosquitoes are for the prevalence and, indeed, for the very existence of "malaria" and yellow fever.

The appalling rate at which flies multiply is almost beyond the comprehension of the ordinary mind. A female fly lays 120 eggs at a time, and produces four broods. In twenty days from the laying of the egg the young fly may be ready itself to lay a brood. Thus the possible progeny of a single fly from April to September has been estimated at ten raised to the thirteenth power, or ten trillions. It is calculated by our agricultural department at Washington that in forty days a single fly may produce 800 pounds weight of descendants. Such figures give a startling realization of the magnitude of the effort to annihilate the fly, and in fact actual annihilation is beyond the hope of accomplishment. But persistent, systematic effort can appreciably reduce the number of flies, and the people of modern nations are commencing to realize that it pays in good health returns, and therefore in dollars and cents, to carry on a carefully conducted campaign against the pest of flies.

German System of Education.

Speaking particularly of the educational system, the Church and the various sources of power, Mr. Platon Reich, Ph.D., lecturer in German at Trinity College, gave an excellent lecture on "The Germany of To-Day" in the Convocation Hall of the college on Saturday afternoon. In dealing with his subject in a very able manner, Dr. Reich stated some very interesting facts not generally known, and which give, by the light of the experience of so great a nation some very useful information on a number of widely-discussed problems.

The long developed, highly organized system of compulsory education in Germany he thought to be an immense factor in the general prosperity of that country, and the striving for quality rather than quantity in education was shown to be the proper goal. German educational establishments are divided into three classes—elementary schools, secondary schools and universities, and all of these are State institutions, though universities retain a certain independence. The theatre, also a State institution, is one of the greatest educational factors. All teachers are civil servants and must pass a very rigid educational test as well as Government examinations, while even university professors are proposed by the university and always approved by the State. Moreover, teachers receive remarkably small stipends, but there is a pension granted them yearly on their retiring at the age of 45.

The curriculum is not a large one, but most exact knowledge of the subjects is required. The mechanical system of learning from books by heart has been largely dispensed with, and the country and parks are used as classrooms for instruction in natural history, botany and such studies that encourage the love of outdoor life. Every child must attend school from the age of 6 to the age of 14, and must have a certificate of efficiency before leaving. Special provision is made for the weak, blind, dumb, etc., while special "forest schools" are provided for anaemic and consumptive children, where all classes are conducted in the open air and special treatment given.

Pensions for Mothers.

Governor Tener of Pennsylvania approved the Act recently passed for county pensions for mothers under the administration of a commission of from five to seven women to be named by the Governor for each county availing itself of the provisions of the law. The trustees are to investigate all cases, and may recommend payments to any deserted mother or widow unable to maintain her children at home. Payments are to be made monthly, and the combined maximum payment shall not exceed $12 a month for one child, $20 for two children, $25 for three and $5 a month for each additional child. For the purpose of the new law an appropriation of $200,000 is made.

The mothers' pension system is now in operation in four States.

Sex Hygiene Circulars.

The Department of the Ohio State Board of Health has recently issued a circular entitled "Sex Hygiene for Yong Men"

and a similar one entitled "Sex Hygiene for Young Women." Copies of these can be obtained by health officers. The department would like to know that a copy of the circular has been placed in the hands of every pupil graduating from a public school. Y. M. C. A.'s, Y. W. C. A.'s, Boys' and Girls' Clubs, Boy Scouts, Camp Fire Girls, and similar organizations, are appropriate channels for the distribution of these circulars.

The department has also issued a leaflet on "Suggestions for the Prevention of Venereal Diseases," which physicians can hand to patients afflicted with syphilis or gonorrhea.

Regrettable But Not So Surprising.

That Dr. Friedmann thinks more of private profit than would the ideal scientist who had discovered, or thought he had discovered, the long-sought remedy for one of humanity's gravest ills—this has been hinted by his acts ever since he announced that he could cure consumption. It is pretty nearly proved by his organization of a great company to exploit the financial possibilities of his turtle vaccine after the most efficient methods of modern business. Rather too obviously he does not propose, if he can help it, to be content with glory and the gratitude of mankind, and to let the material rewards of his achievement be incidental.

This is a mistake from the standpoint of enlightened expediency, and it is a mistake of the sort that "practical" men so often make, thereby proving their false estimate of relative values. By forming his company at all, and especially by forming it before his remedy has received the official and professional recognition he claims for it, Dr. Friedmann has exposed himself to the charge of desiring the immediate profits which he can undoubtedly draw from his widely and freely advertised product from the victims of a disease so desperate that they are naturally willing to pay well anybody who even promises a cure.

All these things are true and to be regretted to whatever degree may be one's respect for medical science and its practitioners. At the same time, it should be remembered that the important question is not the delicacy and unselfishness of Dr. Friedmann, not whether there is too much business in his science, but whether he has found something that is or approaches a specific for tuberculosis in all or some or even a few of its many forms. That he sincerely thinks so there is no reason to deny, and, whatever his ethics, he is enough of a scientist to make his opinion of some weight. At worst, he is not the first or the hundredth man to try to make money, openly or secretly, out of a medical discovery, and only because he is a doctor is he held to be under any obligation to give the world the fruit of years of laborious investigation.

To the high honor of the medical profession, we all offer to its members the counsels of perfection and are grieved or indignant when such counsels are rejected. That they should be, now and then, is not surprising, however, and the rewards accorded to men whose service to their fellows equalled what Dr. Friedmann claims he can render have so often been posthumous alone that it were well not to be over-harsh in characterizing the sharpness of his lookout for the main chance.—New York Times.

One Cent a Day for Health.

Every one has been interested in the wonderful work being done in Panama in the construction of the canal. Startling as have been the results of the work of the engineers and builders, the work of the Sanitary Department has been even more wonderful. In a region noted as the most unhealthful in the world, in which our predecessors, the French, were unable to succeed because they could not keep the workers alive, American army surgeons, by the use of scientific facts known to all, have succeeded in lowering the death rate among American residents far below that of our most favored American communities. According to Colonel Gorgas, the chief sanitary officer of the Canal Zone, the death rate for 1911 among 10,489 Americans was only 4.48 per thousand. While this result has been mainly due to the control of yellow fever and malaria, and while it is true that the American population consisted of picked individuals, largely of educated men and women in the prime of life, yet even with all these conditions recognized, the

record is a remarkable one, and is probably without a rival. And all this, says Colonel Gorgas, has been accomplished at an expense averaging one cent per day for each individual. If this result can be secured at this cost in the centre of a tropical jungle, what would not a similar expenditure do for our American cities? One cent a day is what the average American pays for a daily newspaper. It is one fifth the cost of one five cent cigar. It is one-fifth the price of a daily street-car ride. It is one-fifth the cost of admission to a moving picture show. It is one-fifth of what we pay for a glass of soda-water or a package of chewing gum. Who would say that the expenditure of this amount would be any burden to this rich and extravagant nation? And yet it is the cost of life itself. Is one cent a day too much to pay to protect the life and health of an American citizen?

Some Physiologic Aspects of Exercise.

The indulgence in athletics as a mode of promoting health and physical well being and the rational employment of exercise as one of the devices of physical therapy, demand a thorough understanding of the physiologic phenomena and consequences attending various forms of muscular activity. It has come to be widely recognized that no person should be permitted to engage in exhausting sports or unusual physical exercises who has not a normal constitution which will insure him against possible untoward effects of extraordinary effort. A careful physical examination by a competent medical adviser has become a recognized practice in gymnasiums, sanatoriums and comparable institutions in order that those of weaker physique who may be handicapped by some bodily defect or particularly susceptible organ may not suffer damage from undue activity. When we inquire, on the other hand, what the actual physiologic consequences of exercise are, what functions are altered and how, it is not always easy to find an answer. The physicology, and pathology of exercise is a theme which largely remains to be written. Certain facts have forced themselves on our attention in an emphatic way, and permit of broad generalization. This is true, for instance, of the general response of the heart and the changes in the circulation incident to muscular activity. The underlying causes, the regulating mechanisms, the abnormal responses—all demand critical interpretation. And this statement applies in still larger measure to other related phenomena such as the manifestations of fatigue or the escape of the organism from it.

The careful studies of Cook and Pembrey of London will be welcomed in this connection. They have made many observations on the respiration, pulse and temperature of healthy men before and after exercise, for the purpose of elucidating the phenomena of muscular dyspnea, "second wind" and training. The mean composition of the alveolar air during rest was found to be 5.57 vols. per cent. of carbon dioxide and 14.89 of oxygen; directly after muscular exercise the means were 6.52 vols. per cent. of carbon dioxide and 14.33 of oxygen.

The respiratory quotient CO_2 O_2 is often quoted to indicate the nature of the compounds consumed in the body when energy is liberated for various physiologic functions. The figures for protein, fat or carbohydrate combustion are distinctive and be used under appropriate conditions as an index of the character of the metabolism going on. Cook and Pembrey have pointed out that during vigorous muscular work the respiratory quotient can no longer be depended on to represent the resultant of the metabolic activities, for the rapid ventilation of the lungs in the dyspneic stage can wash carbon dioxide out of the blood without producing a corresponding increase in the absorption of oxygen. The quotient is thus raised as the result of the altered pulmonary ventilation without regard to the metabolism itself.

The ventilation of the lungs is, of course, greatly augmented by exercise, and the respirations are increased in frequency and amplitude. The influence of oxygen on these phenomena has been the subject of considerable discussion in recent years. According to the London investigators, there appears to be little or no definite influence on the volume breathed and the number of respirations when the subject at rest breathes oxygen instead of air through a mask and valves. It is necessary, they state, to take precautions to prevent the influence of suggestion and also to moisten the oxygen, which otherwise would differ

from the air in being dry and cool. Under such carefully guarded conditions, which indicate the tendency of incompetent observers to draw false conclusions, most men at rest cannot recognize any difference between pure oxygen and air. After exercise the postponement of distress during breathing in and out of a spirometer enabled subjects to recognize when the latter contained oxygen. The lack of oxygen as well as the accumulation of carbon dioxide may act as a stimulus to respiration, especially after active exercise; but the amount of oxygen in the alveolar air is less affected under ordinary conditions of work than is that of carbon dioxide, so that the administration of oxygen is regarded of value by Cook and Pembrey as a rule only when the conditions are pathologic.

The difference in the pulse-rate in healthy men are reported to range from 47 to 90 per minute. Directly after exercise the pulse-rate may be as high as 180 per minute. The return of the pulse to its rate during rest is of considerable importance. The influence of training comes into distinct relief in this connection. In the well-trained man there is a rapid recovery and a tendency for the rate of the pulse to fall below its original value during rest; in the untrained man the rate remains high and often irregular for some time. Irregularity of the pulse after exercise has been observed frequently. Apart from the rapid decrease in the rate, Cook and Pembrey have noticed that in some strong and well-trained men beats appear to be dropped; in untrained men the irregularity shows iteslf in the rate and volume of the pulse. It appears from the studies on record that an examination of the pulse affords the readiest means of testing the influence of muscular exercise, but it is necessary to make determinations before and at various periods after the work. A rapid return of the pulse to its original frequency during rest appears to be the best indication of good accommodation and training; in well-trained men the return is so rapid that observations must be taken in successive periods of fifteen seconds, if true indications of the influence of exercise are to be obtained.

It is well known that muscular exercise increases the temperature of the body when the measurement is made in the rectum or in the stream of urine. The values obtained in the mouth are not very reliable as indications of the internal temperature of the body, for the boundaries of the mouth are thin and easily cooled by the air and by evaporation from the external skin surfaces. Time has been required for the recognition of this physiologic rise in temperature owing to the fact that the practice of observing temperature in the mouth has been and still is so widespread. It is stated that the internal temperature may rise to 102 F. (39 C.) in perfectly healthy men without provoking distress or discomfort if the body is lightly clad and there is no obstacle to the free evaporation of sweat. Only when the clothing is unsuitable or the muscular work is preformed in a warm, moist atmosphere does discomfort manifest itself.

Cook and Pembrey maintain that the rise of internal temperature found in men well trained and in perfect health has a beneficial effect on the performance of muscular work. Persons work more efficiently when they are "warmed for their work." There are several explanations for this beneficial influence: the excitability of the respiratory and cardiac centres is increased and the blood gives up its oxygen more readily to the tissues.

Athletes are familiar with the phenomenon of "second wind," the expression popularly applied to the disappearance of the discomfort and dyspnea which frequently arise very soon after the initiation of vigorous muscular exercise. This accommodation can scarcely be due to training; for in the untrained the phenomena are often more marked than in the trained. Any vigorous and continuous muscular activity may produce the conditions. Experimental analysis has led to the conclusion that "second wind" is an adjustment of the respiratory and circulatory systems to the demands of the muscles for an adequate supply of blood. Carbon dioxide appears to be the chief factor in affecting the accommodation.—Journal A. M. A.

Not More Than 150,000 Out of 1,000,000 Recorded.

Registration and reporting of living cases of tuberculosis, in a manner similar to the reporting of other infectious diseases, is now required by the state law or regulation of boards of health in 33 states

and territories out of 53. Five years ago only 14 states had legislation on this subject. The increase is looked upon as a sign of marked progress in the anti-tuberculosis movement by the National Association for the Study and Prevention of Tuberculosis, which issues a bulletin on this subject today. Based on figures obtained from cases of tuberculosis reported in Cleveland, New York and other cities where thorough registration is employed, it is estimated that for every death from consumption in the United States, of which there are on an average 200,000 annually, there are constantly more than five living cases, making at least 1,000,000 in all. Of this million cases, it is estimated that the health authorities have records of not more than 100,000 to 150,000, or one in every eight or ten, and that, for the great majority of cases recorded, no hospital, home or dispensary care is provided. Practically nothing can be done to control the spread of tuberculosis in the unreported cases.

Of the 33 states where reporting of cases is required, adequate or reasonably complete records are kept in not more than eight. Twenty states and territories have no laws or regulations requiring the reporting of tuberculosis and in most of these states consumption is not classified officially by the health authorities as a communicable, infectious disease. These states are: Arizona, Alaska, Arkansas, Delaware, Florida, Georgia, Idaho, Illinois, Iowa, Kentucky, Missouri, Montana, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Philippine Islands, South Dakota, and Wyoming. Special laws requiring reporting and registration of tuberculosis have been passed in Colorado, Connecticut, District of Columbia, Kansas, Maine, Maryland, Michigan, Mississippi, New Hampshire, New Jersey, New York, Rhode Island and Vermont. In twenty other states, tuberculosis is included in the lists of infectious diseases that must be reported by physicians.

In concluding its bulletin, The National Association says: "Reporting of living cases of tuberculosis to the local and state health authorities is the first requisite in any adequate campaign to control the disease. No efforts to prevent the spread of consumption can be successful until the actual living cases are both known and properly cared for."

The Only Safe Milk?

Medical Health Officers, doctors, various associations and intelligent people generally are giving more serious attention to the problem of a pure milk supply.

The perplexity and anxiety has increased as the difficulties have become better understood. The solution has seemed almost impossible, particularly since it has been found that milk usually passes through several different hands from cow to consumer.

While the direct campaign, the frontal attack, against bad milk resulted thus far in discouragingly small success, a flank movement has been started that may result in complete victory.

If each of our readers will turn the searchlight of his attention to a Homogenized milk, sterilized in sealed bottles, now being sold by Toronto grocers and drug stores under the name of Laurentia Milk, he may learn of something to his advantage. In fact, we do not hesitate to suggest that it is possible he may find the solution of the milk problem.

It would not be wise to make this a positive assertion. But from our personal observation and investigation we find certain characteristics of this milk that warrant our taking such a stand that would cause you to investigate thoroughly its possibilities.

We believe that each unbiased investigator will soon be asking himself the same question we have, i.e., "Can it be possible that some commercial institution has quietly overcome all difficulties, without previous announcement or publicity?"

It is claimed that homogenizing the milk, which is entirely a mechanical process of forcing milk through a valve under great pressure, smashes the cream globules and mixes the cream fat so thoroughly with the milk as to render it impossible of separation, making a homogeneous product throughout—in fact, what might correctly be termed a milk and cream emulsion; and, that, like all other emulsions of fat or oil, it is radically improved in digestibility over its original condition.

It is claimed that homogenizing changes cow's milk from its original coarse state of adaptability to the strong digestion of a lusty calf, into a condition as ideally fitted

to the requirements of the sensitive human stomach.

If this be true, homogenizing removes one great disadvantage and danger in the use of cow's milk for human consumption. This disadvantage is almost universal with bottle-fed babies, frequent amongst children and common even with adults.

It is further claimed that this homogenized milk can be sterilized without any injurious effects on its digestibility, such as is commonly ascribed to ordinary cow's milk.

This milk is put in bottles, sealed airtight and afterwards sterilized. The result is that the bacteria are all killed, the milk made absolutely pure and germ-proof, free from all danger of disease, free from the possibility of dilution, adulteration or contamination until the bottle is opened; it also makes the milk non-perishable, relieving consumers of the endless annoyance, inconvenience and waste unavoidable with ordinary cow's milk.

We find, on trying the milk, that it has the flavor and consistency of thin cream, as well as the color. The flavor is pronounced and distinct, so much so that taste will distinguish this milk from any other. We understand the difference is caused entirely by the homogenizing and sterilizing.

The old adage, "The proof of the pudding, "etc., should be applied to this new milk. We find that a number of Toronto physicians have used the milk with surprisingly uniform success, and that many Toronto families are using it exclusively, as well as the cream, which is put through the same process.

If homogenized-sterilized milk and cream in sealed bottles really provides a pure, safe, digestible, non-perishable, staple product there is no use mincing words, it will solve the milk problem, making one of the most important of all necessary foods scientifically fit and reliable for human use.

We have our own opinion, you render the verdict. General experience is the only qualified jury. Realizing our obligation in this respect, we can do no more than ask that you give this milk your most serious consideration.

Final Report of the English Committee on Tuberculosis.

The committee appointed by the government to investigate and report on the prevention and treatment of tuberculosis has issued its final report. It believes that by means of treatment and education the risk of infection, even from persons in the more acute and advanced stage of the disease who live in intimate contact with others, may be largely diminished. Infection is frequently disseminated by persons suffering from advanced pulmonary tuberculosis who are in the habit of entering and leaving poor-law institutions. Compulsory isolation of certain cases in a state of high infectivity is particularly recommended when the patient's surroundings are such as to increase the risk of other persons becoming infected. Systematic and thorough disinfection of premises which harbor tubercle bacilli is enjoined, and stress is laid on the importance of early diagnosis. The committee believe that material prosperity of the community as a whole will be reflected in a decreased incidence of tuberculosis, and makes special reference to the necessity for the improvement of housing conditions, and the value of schemes for town planning and garden cities.

Bovine Tuberculosis.

The committee is of the opinion that the ultimate eradication of animal tuberculosis is not impossible but is likely to be slow, and must depend on co-ordinated and continuous effort. The committee welcomes the proposed legislation dealing with the question of milk supplies, but thinks that it should include the whole country, and should contain provisions conferring special powers on local authorities, the central authority having the right of enforcement in the event of default by local authorities. It recommends that in the preparation of any scheme for the eradication of bovine tuberculosis the following prints should be provided for:

1. County councils and county borough councils should have powers and be required to inspect herds, dairies and farm buildings, and to administer all enactments relating thereto, their work being subject to adequate supervision by a central authority.

2. Only guaranteed tuberculin should be used, and facilities should be given, subject to such conditions as may be thought desirable, for the free testing of cows by qualified and authorized persons.

3. Certain cows should be slaughtered in the interest of both the public and the dairy industry, the premises thoroughly disinfected and no tuberculous animals added to the herd.

4. Measures should be uniform in character, and the same principles should be applied to the whole country.

5. The public should be educated to appreciate the greater value of pure tubercle free milk and milk products.

6. Farmers should be taught that tuberculosis in cattle is infectious and not hereditary.

Children.

The committee considers the evidence that children are effected through tuberculous milk, as well as from other sources, convincing. Additional provision is required for the treatment of children suffering from the disease including those having pulmonary tuberculosis, tuberculosis in the bones and joints, and glandular and other forms of tuberculosis. In addition to the provision of treatment at sanatoriums and hospitals for tuberculous children mentioned in the interim report, there is urgent need for open-air treatment and education by means of open air schools (day and residential), open air classes, etc. These institutions should deal not only with tuberculous children, but also with the large number of children who are suffering from ailments which, if neglected, would be likely to increase their susceptibility to tuberculosis. These institutions should be utilized, as far as possible, to teach the advisability of the adoption of a practically open air life in the homes of the children. The school medical officer should be closely in touch with the family medical attendant, and the tuberculosis dispensary should as far as possible provide the same service for children as for adults. Not only should there be a correlation between the dispensary and the various institutions for children, but also the institutions for children, such as the school clinic, the open-air school and the sanatorium, should be co-related in order to ensure the easy transference of children from one institution to another. All appropriate cases should be referred to the tuberculosis dispensary as a clearing-house for the confirmation of diagnosis in doubtful cases, for the purpose of clinical record and for treatment when required. Children of school age fit, or likely to become fit, to receive education in a modified form, should be referred to the school medical officer for education in open-air schools, sanatorium schools or other special schools, or in ordinary public elementary schools under special care and supervision. The arrangements should be such as to secure the co-operation of the general practitioner.

Some Fly Aphorisms.

Aphorisims are much resorted to by public health workers. The following, dealing with the fly, are culled from various sources:—

"It is better to screen the table and wear a smile than scoff at the precaution and wear mourning."

"Flies in the dining-room usually precede nurses in the sick room."

"Screens in the windows prevent crepe on the door."

"Flies, as well as bad water, spread typhoid."

"A fly in the milk may mean a member of the family in the grave."

"A fly has natural enemies; the most persistent and most effective should be man."

"It costs less to buy a screen door than to get sick and lay off for a month."

"It's a short haul from the garbage can to the dining-table via the fly route."

"If at first you don't succeed, swat, swat, swat again."

Flies follow filth.

Fever follows flies.

Swatting saves sickness.

—Ohio Board of Health Bulletin.

Civic Cleanliness.

Civic cleanliness has not advanced very far in Canada. The town dump, with all its tin-cans, waste-paper, old rags and ash conglomerate is frequently as much a

public institution as the town hall or the town council. For the sake of economy in cartage the dumps are frequently placed much too close to residential districts, and civic apathy permits them to remain there, and to grow in bulk and unsightliness.

Garbage must be disposed of, but why our civic authorities should not insist upon the burning up of much of the house waste upon the premises, either in the furnace or the kitchen stove, is something to be marvelled at. If there were more domestic tidiness in Canadian towns and cities in the way of destruction of many articles of house waste by home cremation, the gross saving to the municipality would be considerable and the town dump would be less in evidence.

Then, too, the "dump" should be supervised, and men should be employed in burning all such materials as paper, cardboard and other boxes, discarded matting, etc. This would result in the saving of space and prevent the scattering of the lighter materials by wind. Further the destruction by fire of as much as possible of the material brought to the dump would prevent to some extent the fly nuisance from that quarter. On the completion of the burning operations, the health department should insist that all garbage should be covered first with a layer of lime, and then with clean earth, the latter for the depth of at least three feet. Of course in cities and large towns incinerators should be installed and the dump should only be used as a repository for ashes and clean earth. Scrap should be sold.

The spring time is a good season to declare war on the town dumps and on filthy back yards and lanes. If the citizens can be aroused to demand action, the civic officials will very soon supply it.

Development of the House Fly.

The eggs are deposited by the female, about one hundred and fifty in a batch, in manure or decaying organic matter. In a few hours, under favorable conditions, the eggs hatch and a small white grub emerges from each. Finding themselves in the midst of plenty, the larvae begin feeding and eat until the limit of their first skins is reached. Growth in this stage is extremely rapid, and in a few hours the skin is split and discarded, while the second skin, a size larger, supplants the function of the first. Feeding is then resumed and this process is repeated some four or five times. This is not only true of the house fly but of the majority of the million kinds of insects. Four or five molts is the common number before the grub or caterpillar is full-grown and the next stage begun. In the case of the fly—unlike butterflies or moths—the last larval skin is not cast, but dries and forms the pupal case. I wish to emphasize the fact that the larval stage in insects is the season of growth, and is, moreover, the only period of growth and that after this stage is passed the insect never grows any more in bulk. Thus the next stage after the larva is known as the pupa or the chrysalis, and this is devoted entirely to development. In the house fly development is very rapid, and is preceded by a process of dissolution, for if a pupa-case be broken open a short time after pupation it will be found that there are no signs whatever of organs such as legs, wings, or even mouth-parts. A yellowish milky fluid will be found, and from this the complete adult fly is developed, under optimum conditions, in less than a week. Thus from the time the egg is laid until the emergence of the adult fly less than fifteen days may elapse.—C. K. Brain, Monthly Bulletin, Ohio State Board of Health.

Physicians as Unpaid Pedlers of Nostrums

One of the most disheartening features of the fight against the proprietary evil within the profession is the slowness with which physicians awake to their responsibilities in the matter. It is a notorious fact, familiar to physician and advertising man alike, that the simplest and cheapest way to introduce a nostrum to the public is through the instrumentality of the medical profession. Ever since the birth of the proprietary evil in this country, shrewd manufacturers have persuaded doctors to act as unpaid pedlers for their wretched nostrums and to become **particeps criminis** in the exploitation of such wares.

Nostrums and the Insurance Act: Large Decrease in Sales.

As anticipated, one good effect of the insurance act has been to curtail considerably the sale of nostrums as well as of simple remedies for minor ailments which are stocked by practically all pharmacists. Naturally when an unlimited supply of medicine can be obtained without charge on the prescription of an insurance physician, people are not willing to purchase remedies of any kind. In the past it has been common to resort to pharmacists to save the payment of physicians' bills. The decreasing demand for nostrums has been noted especially in industrial centers where a large proportion of the population are insured. Some pharmacists estimate the decrease in the sale of proprietary remedies at 20 per cent.; the experience of others is that it is much larger. In some working-class centers the nature of the pharmacist's business has been almost completely changed, and in many pharmacies, where the amount of dispensing was formerly negligible, sixty or seventy prescriptions, and in some even one hundred or more, are dispensed daily.

The Value of Open Air Schools in Fighting Tuberculosis.

S. Bernheim and H. P. Grancher estimate that about 15 per cent. of the children of school age have some form of tuberculosis. Many of these are early and curable cases. Open air schools should be established for these and should include all sickly children and those with hereditary alcoholism or syphilis. A few such schools have been established by private initiative, and the gain in health and mental activity on the part of the children has shown them to be means of fighting tuberculosis worthy of adoption by the state. It is remarkable further that while the hours of study are shorter and much of the time is devoted to physical exercise and manual training, yet the pupils keep up in their scholastic studies with those in indoor schools, in addition to making marked gains in weight and general health. Revue Internat. de la Tuberculose, 1912.

Fresh Air Open Schools.

The first open-air school in Kentucky for tuberculous children was opened in Lexington on the roof of the new Lincoln school building, March 17.

Hints on Health.

Sir John Cockburn, at the Royal Sanitary Institute recently, said that health was very closely akin to holiness, and their derivation was identical. Moses was the first Medical Officer of Health. The important element conducive to personal health was fresh air, and yet every day that fundamental axiom was violated in our rooms and railway carriages. The ordinary bedroom was quite insanitary. Everyone should sleep with the windows open. Fresh air and moving air was requisite to health, and above all was an antidote to consumption. He did not believe in the notion that all that was wanted was to keep the air moving by fans. It was arrant nonsense, for fresh air was necessary. Deep breathing through the nose was another necessary thing. He wanted to make a crusade against ladies' veils. There was nothing more beautiful than the human face divine, and yet these veils had awful spots, which made the ladies look as if they had black eyes. (Laughter.) The fearful grimaces that ladies who wore veils had to have recourse to in time led to the deterioration of the features. (Laughter.) In conclusion, Sir John made an attack on sleeping in sheets and also on wearing night attire. "Just a night cap," he said, was all that was required to be worn in bed, for the house would not be burnt down every night and then it was advantageous to have the minimum of clothes to escape in. (Laughter.) Let no one despise the hot water bottle. (Laughter.) It was ridiculous nonsense to suggest that people should walk with their feet turned out, that was the very way to make them flat-footed. Poets and philosophers might live on a vegetable diet, but it was necessary for those engaged in politics and who had to encounter in deadly enmity their fellow-men and raise the worst passions of which they were capable, to have a carnivorous diet. (Laughter.) Weak tea was the best and least harmful of all drink.

The Nam Family.

The second memoir issued by the eugenics record office gives the results of a family of ne-er-do-wells that originated, so far as the study showed, in Massachusetts about 1750. Soon after 1800 this family began to inhabit the jails, asylums, and poorhouses in a certain rural district in New York. The farmers of this neighborhood have had to bear the expense of caring for the defectives in this large family since about 1830.

A certain portion of them migrated to Minnesota and the investigators followed up those branches with a view of discovering whether the new environment would bring the stock up to standard.

The report quotes an old history as saying of the Nam who started the strain:

"He is one of a set of vagabonds by the name of Nam who lived in the mountains." One of the sons is described as "ignorant, alcoholic, irrascible, and indolent."

"One son emigrated to New York, bought 160 acres of land, and there, in 1810, built a log cabin which was occupied until 1880 and is still standing. This log cabin may justly be called 'the Cradle of Nam Hollow,' for every one born in this cabin has been socially inadequate and has helped to swell the number of degenerates who give this place its character."

The conclusions quoted below are based upon a study of 1,795 individuals, of whom 852 were descended from the original Nam. The cost of this family is estimated at $1,411,000.

The non-social traits in this family are indolence, alcoholism and licentiousness.

The eugenic principles of laziness are as follows: "When both parents are industrious, 90 per cent. of the children are industrious; when both parents are indolent, 76.5 per cent. of the children are indolent.

"Two lazy parents may become the founders of industrious strains, but indolent strains arise chiefly, if not exclusively, by marirage with indolent persons."

Alcoholism is extraordinarily high—88 per cent. of the females and 90 per cent. of the males. "Where both parents were alcoholics every child became alcoholic. Where one parent was alcoholic and the other possessed self-control the offspring who were alcoholics ranged from 50 to 75 per cent."

A study of the cousin marriages in this strain, where the bad predominated, showed consequences of infant mortality, imbecility, feeble mindedness, and other defects fearful to contemplate.

On the possibility of improving the strain by improving the environment the authors say:

"Placing out in better families and asylum life give a veneer of culture and tend to strengthen the sex impulses, but that effect is uncertain and frequently discouragingly slight."

As to the effects of the migration to Minnesota, one report says:

"The Nams were of the inefficient, worthless sort, not lazy and not criminal. None of them was ever arrested except for drunkenness."

Another report says of the second Minnesota generation:

"They are inefficient and alcoholic."

The general conclusion as to the emigrants is that they have the same mental traits as those that remained in New York State.

A general conclusion is that it is three times as expensive to maintain the offspring of a degenerate couple as it is to segregate the original pair and maintain them in idleness.—Dr. W. A. Evans.

A Senility Toxin.

The old-age theory of Metchnikoff seems to be advanced by the recent work of one of his pupils. The intestinal bacteria supposed to bring on senility secrete certain toxins, and one of these, called indol, has been isolated, and used for certain experiments. Injections of a small fraction of a grain were followed by surprising effects in guinea pigs. Not only did selerosis or hardening of the chief artery soon begin, but the brain tended to harden, and symptoms of age were also noted in the liver, kidneys and other organs.

Longevity in Mexico.

From The Mexican Herald.

The approaching visit to Chicago of a Blackfoot Indian, whose age, well authenticated, is 131 years, has been noted in our news columns. It is an interesting fact

that the most remarkable instances of longevity among the inhabitants of the New World are chronicled of the aborigines. This holds good both of North and South America. Especially great are the ages attained by Indians dwelling in the highland tropics, a fact noted by the observant Baron von Humboldt, and by scores of other travellers and explorers.

About two decades ago Gen. William Palmer of the famous Palmer-Sullivan combination who built the national railroad from Laredo to this capital, discovered in the State of Vera Cruz an Indian peon working in the field, who gave his age as 135 years. Now, usually, venerable Indians guess at their age, but in this case there was no mistake, for Gen. Palmer had the parish register searched, and the entry of the man's baptism was found. The Indian had many descendants, and one son more than 100 years old assisted his father in his labors.

Some years ago President Diaz, during a visit to the State of Jalisco, encountered a veteran of the War of Independence, a man of Indian blood, who fought under the patriot Morelos, and was at the time when Gen. Diaz met him 127 years old. He had much to tell the President of those early campaigns.

Cases of Indian centenarians are almost too common to attract remark. But that of a certain Indian of the State of Michoacan, who, according to Morelia papers of not so many years ago, had reached the astonishing age of 165 is worth noting. He was described as a laborer who worked almost up to the day of his death, and had been married several times, leaving great-grandchildren and grandchildren. This man's age is the highest yet chronicled in North America.

There is a Mexican saying to the effect that when the Indian's hair grows white the white man has already disappeared. The superior longevity of the Indian is, we think, rightly attributed to his frugality, his life in the open air, and his inherited lack of "nerves." His mind is not swept by gusts of emotion and he preserves his serenity under all circumstances.

Daugerous Athletics.

When Benjamin Franklin went to work as a journeyman printer in London he found that all of his fellow-workers were beer guzzlers. They told him that they could not be strong men unless they drank strong liquor. It was a common fallacy. We smile at it to-day, but it required a demonstration to overthrow it in Franklin's time. He drank no alcoholic liquors and ate little besides bread, but he showed his companions that he could lift the heavy forms with much more ease than they could. On the strength of the demonstration he gained several converts to the total abstinence idea.

To-day we have some beliefs and support them with arguments that may be as fallacious as that of the London printers. One of these is that college and school athletics of the kind which require violent exercise or struggle to the limit of strength and endurance promote health and strength. It has not been as easy to demonstrate that this is not true as it was for Franklin to discredit alcohol as a strength builder. The Government gathers no athletic statistics.

Nevertheless, we have some light on the subject. The head of the Bureau of Medicine and Surgery has recently made a report to the secretary of the navy as to the respective health conditions of the Annapolis graduates who did and who did not gain emblems as athletics.

He found that of the men still in the service whose records show present illness of one sort or another, 187 were non-athletics, as against 198 who were eminent in sports and games. Among the maladies or disabilities to which the latter are by 50 per cent. more subject than the former are hardening of the arteries, heart disease of four kinds, gastric disturbances, albuminuria, general ill-health, obesity and tuberculosis, and various traumatic lesions as well.

There is other testimony. It is the steady swing of the blacksmith's hammer that develops his arm, rather than spasmodic and violent exercise. The boy who milks cows develops a strong grip in his fingers because of the regular exercise of the muscles, and not by exerting his full strength.

Physical culture, therefore, rather than athletics, develops the muscles, promotes

health and prolongs life. If the ordinary school and college athletics were replaced with courses in physical culture, there is reason to think good health and the happiness that follows from it would be more abundant.

TRIPURE WATER.

Water is called the universal solvent, and it is easily shown that water ranks first of all liquids in dissolving various substances.

Water is classified by its solvent action, and as the amount of matter in solution increases, the greater is its impurity. On this basis, we are able to compile the following comparative table, indicating the total solids stated in grains per gallon:

Table 1.

Sea.	Mineral Spring	Well.	River.	Rain.	"Tripure" Distilled.
2227	20 to 1000	5-500	4-150	3-10	0

While the solids in solution in these waters are generally obtained from the soil through which the water percolates, a vital distinction should be made relative to the solids in solution, viz.: organic matter and mineral (inorganic) matter.

In most water supplies for cities (some of which are filtered river or lake water), any small amount of inorganic matter is not necessarily considered very injurious, but when even a very small amount of inorganic matter of putrescent character is present, the water is rendered unfit for drinking purposes, in fact, very often poisonous. This organic matter frequently contains bacteria, typhoid fever germs, etc., the contamination often coming from sewage.

In all drinking water it is essential that this contaminated organic matter be destroyed. Many systems and methods have been and are used to accomplish this result. An examination of these will prove of interest.

Filtration.

First and most common is filtration. This is generally accomplished through large sand filters, often in conjunction with a coagulant, such as alum. Slow sand filtration does not remove all the organic matter and bacteria, as shown in Table 2 of analyses of various city water supplies.

Table 2.

Table of Analyses of Water Supplied to Various Cities.
Parts per Million.
Compared with "Tripure" Distilled Water.

	Alb. Ammonia.	Free Ammonia.	Chlorine in Chlorides.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Total solids grs. per Gallon.	Bacteriological colonies per c.c.
New York	0.126	0.017	1.80	0.080	0.003	4.24	454
*Philadelphia ...	0.100	0.010	3.20	0.258	0	6.00	312
*Boston	0.319	0.006	4.10	0.106	0.0001	3.10	148
Hoboken	0.060	0.015	5.60	0.100	0.002	6.61	230
Brooklyn	0.085	0.100	3.50	6.000	0	4.00	468
TRIPURE Distilled Water	0	0	0	0	0	0	0

*Filtered.

By consulting this table it is evident that filtration does not completely remove mineral, organic matter or bacilli from water. Household filters often render water more impure after filtration through them than before. The stone filters one sees at times, where the water is caused to drip through fine-grained sandrock or similar material act as mere strainers, and are absolutely unreliable. Currier has demonstrated that some filters after use for even a single day furnish a filtrate containing five hundred times as many germs as the unfiltered water. The author himself has seen household filters of many types so seriously contaminated that water by passage through them was rendered worse, and yet such appliances are in full use and greatly trusted on account of the clearness and apparent purity of the water received from them.

Filters once polluted serve as a breeding ground for bacteria.

Chemical Precipitation.

The ordinary method for this is to form a coagulant by the addition of alum or aluminum sulphate to the water, which precipitates aluminum hydrate in a flocculent condition; this is supposed to collect all the impurities in the water, and this settling, the clear water can be drawn off or filtered. Many other chemicals are used in place of alum, but this method does not effect a complete softening of the water, nor does it remove all the bacteria even after a complete precipitation and a final filtration.

Sterilization.

Sterilizing is simply boiling the water This method of purification has many decided objections, in fact, nothing is accomplished but the more or less destruction of germ life. As it requires a temperature of 266 deg. F., extending over a period of many hours, to complete the destruction of germ life, this method proves itself insufficient, as such a temperature is never reached in boiling water under atmospheric conditions.

Let it be supposed that ideal conditions existed and that the bacteria contained in the water were destroyed; all the dead germs would still remain in the water and would, in turn, set up germs of putrefaction. Sterilization cannot remove mineral or organic matter and the water is rendered flat in taste, due to the loss of air by boiling.

Ozonation.

In this method Ozone is introduced into water to oxidize the organic matter. If too small an amount of Ozone is used, only a portion of the organic matter is acted upon. Even if the proper amount of Ozone were used this method has the same objection as sterilization, namely, that the germs, the mineral and the organic matter still remain in the water, nothing being removed.

Distillation.

Distillation properly performed renders water free from all impurities. The tripure System of distillation effects a complete purification producing a water free from organic and mineral matter and all bacteria. The raw water, being converted into steam or vapor, frees itself from all matters that were in solution or suspension. This vapor being condensed in block tin coated tubes gives a product free from all contamination.

Ordinary distilled water is insipid with a more or less steamy taste. By the Tripure System this is overcome, and the water rendered sweet and palatable by a patented process of aeration which takes place prior to condensation.

The distilled water produced by this system can be recommended as being of the highest purity.

There is no apparatus that produces a pure aerated distilled water under such favorable conditions as the Tripure Water-Still.

Wileyisms.

My idea of conservation is not the hoarding of wealth, but the wise use of wealth.

I don't want to go through life with cold feet simply to have my son come after and keep his warm.

Hetty Green ate onions to keep reporters away; it takes more than onions to keep the reporters away.

The advantage of my poems is that they are better than the other fellow's and I don't publish them, so nobody is hurt.

A lie is an abomination to the Lord and a very pleasant help in the time of need.

There are four kinds who ride in street cars in Washington—the workers, the clerks, the shirkers and the smirkers; the smirkers go to see what the others are doing.

Ten thousand sit in the easy chairs while 80,000,000 stand up.

One of the most nutritious foods is whole wheat flour and it is one of the hardest things to get.

No man can earn $1,000,000—he may get it legally, but he can't earn it.

One half the children of this country are starving. This is true of the rich as well as the poor.

The principal industry of Salt Lake is eating—everybody's doing it.

Utah has the longest-lived people and the healthiest.

Good cooks would stop the divorce mills. I wish we had more cook stoves and fewer pianos.

If I were a fat steer I could not pass from one state to another without being examined to ascertain if I were in good health, but being only a fat man I can go anywhere unmolested.

Is a sheep worth more than a citizen of Utah?—and yet you spend more money to keep away things that kill sheep than you do to keep away things that kill people.

We live about forty-four years in this country when we ought to live eighty-eight.

A community that permits a single citizen to die of avoidable disease is a murderer.

Sanitary Surveys.

One of the hopeful signs is the growth of health organizations among the people at large. As physicians are engrossed in the study of health and disease, naturally they were first to see the importance of preventive medicine and, in its development, have been the pioneers. Along its technical sides they will retain most of this leadership, but as the sociologic aspects come into increasing importance, in increasing measure both the leadership and the work will be undertaken by so-called laymen. That has been the history of the movement in other countries and will be in ours.

One of the demonstrations of this tendency is the organization, two years ago, of the National Health league of the Young Men's Christian Association of North America.

It occurred to a group of men that an organization to prevent disease was pretty closely related to the work for "muscles mind and morals, too," of the Y.M.C.A. The organization is open to any one caring to join, whether he is a member of the Y. M. C. A. or not. The dues are $1 a year.

During 1912 every member was given free a copy of Woods Hutchinson's "Preventable Diseases" and one of Hall's "Reproduction and Sex Hygiene." In addition each member received a set of pamphlets entitled "The Injury of Tobacco," "Youth," "Developing Into Manhood," and "The Social Evil," a series of home exercises in card form for sedentary men, and the monthly bulletin.

The league owns and lends, at cost of carriage only, eight sets of lantern slides on personal and public hygiene and two moving picture films—one on flies, the other on consumption.

In the main, the function of the league is to educate individuals in right living, in the art of keeping well. Several times it has undertaken sanitary surveys of cities and towns. One of these was of Toronto, Canada, and another of Poughkeepsie, N. Y. Just how useful a survey may be is largely determined by the skill of its planning. In consequence the league has an official whose duty it is to project and plan local surveys by the members of local leagues. What better work could a local league do than to make a sanitary survey of its town or village? A sanitary survey by a health league is easy in a town or village, but different in a large city. In large cities the better plan is to take some one subject, sanitation, for instance.

Hamburg Children Help Clean Streets.

The proposed campaign by Street Cleaning Commissioner Edwards and Health Commissioner Lederle to clean out the rubbish from the tenements here, says the New York "Times," has attracted attention to the methods of cleaning houses adopted by the important cities of Europe.

In no European town, perhaps, are the methods more interesting than in the thriving German city of Hamburg where carefully trained children help to keep the city beautiful. Writing from that place, United States Consul Robert P. Skinner says that the Mayor of one of the large cities of Ohio who visited Hamburg was much impressed with the important part performed by the children in keeping the city clean. He departed from the city, Mr. Skinner says, convinced that the cleaning of streets and sidewalks in Germany was a much lighter task than in cities of the same size in the United States, because of the orderly habits of the people themselves.

"Suction street-sweeping devices," continues Mr. Skinner, "are practically unknown in Germany. Hamburg itself owns horse-drawn sweepers only, although for about nine months two electric motor sweepers have been in use. These, however, do not yet belong to the city, and are being employed experimentally. They have not given satisfaction and have been under repair more than three months. These motor-driven sweepers fail to work well in this city, because the pavements, as a rule, are not very smooth, and the mechanism of the sweepers is deranged by the shaking it receives. Recently the front wheels of these sweepers have been provided with rubber tires, and they have worked more satisfactorily.

"The Hamburg street-cleaning department cleans, and when necessary, sprinkles all city streets, makes repairs, maintains relief stations, removes dust, garbage, and waste matter generally from streets, houses, wharves, ships, and markets, and operates also a garbage-burning plant. At present the department cleans 1290 streets with their adjacent sidewalks, having a length of 291.4 miles. The roadways cleaned cover about 5,656,970 square yards, and the side walks about 4,177,990 square yards. The work is carried on under the supervision of twelve superintending establishments. Thirty main thoroughfares are cleaned six times weekly at night by means of rotary brooms and all other streets, with few exceptions, twice weekly. In the centre of the city the streets are also cleaned six times weekly during the day, and in other parts of the city four times weekly during the day.

"Asphalt street surfaces require more attention than others as they become slippery and are looked after by specially trained men. They are swept and drenched with water, and, in icy weather are sprinkled with pebbles. Of late, complaints have been made by the owners of motor cars that these pebbles damage the tires of their vehicles so that now this material is strewn only when strictly necessary. The pebbles used are mud free and from one-fifth to two-fifth inch in diameter. In 1910, 865.85 cubic yards of the pebbles were utilized. The Hamburg Street Cleaning Department owns 50 cleaning machines, 54 snow plows, 101 water waggons, 100 garbage carts (for waste from private houses) 60 garbage carts (for waste from ships, quays, etc.), 850 snow wheelbarrows, and 321 garbage wheelbarrows.

"Night work begins at midnight and ends when the streets are in order. Twelve squads work under the direction of twelve different posts. These posts are in charge of an inspector for day work and a sub-inspector for night work. The jurisdiction of each post is divided into 10 sub-divisions, so that in the event of emergency work can be taken up simultaneously at a moment's notice at 120 different points. First the broom machines, of which there are 26, sweep the roadways, while the sidewalks are cleaned at the same time by special men. Another squad follows the sweepers to heap up the dirt swept to the roadside, and, finally carts and garbage wagons follow. The night work never lasts more than eight hours. Householders are required to burn all garbage possible and to store the rest in sheet iron cans with covers, which are deposited on the edge of the sidewalk twice a week, not before 9 p.m. The cans are emptied

by the garbage gatherers and must be taken in from the sidewalk by the householders before 8 a.m.

"Day work begins at 6 a.m. and continues until 6 p.m., except with the men who work on the asphalt streets, who remain on duty until 7 p.m. A two-hour intermission is allowed at noon. Recently ten small iron boxes and ten wire-netting paper boxes have been placed on trial in different parts of the city to facilitate the work of the street cleaning department. If they answer the purpose satisfactorily a large number will be provided hereafter.

"On some streets it is also the practice, where there is a sufficient grade to enable the water to carry off the waste matter through the gutters, simply to scour the roadway with a strong stream of water.

"At the garbage-burning plant of the city in 1900 the following quantities of material were burned: House garbage, 73,176 tons; wharf garbage, 4,216 tons; ship garbage, 3,360 tons; market waste, 680 tons; waste delivered by private persons and public institutions, 1,541 tons; total 82,973 tons. From these quantities of waste matter the city obtained 44,987 tons of cinders and 675 tons of old metal, all of which had a substantial commercial value.

"The regular Hamburg street cleaning force consists of 800 to 900 men, but as snowstorms are frequent in winter, it is often necessary to increase the force to as many as 3,500 men with the utmost celerity. A situation of this kind is met in the following manner: Not later than the month of October the street-cleaning department distributes to all laborers applying for them at the proper registry office a card stating where the applicant is to report for work in the event of heavy snowfall. When the need presents itself, men holding cards of this kind obtain employment first. They are paid as much as $2.50 per day, the standard rate being 2.4 cents per barrow load of snow removed. However, those who fill the barrows are paid at the rate of eight cents per hour. Barrows are used if the snow has to be transported not more than 820 feet. In other cases, carts of 2.61 cubic yards' capacity are employed."

Payment of Insurance Policies.

The National Insurance Practitioners' Association (an association formed, as stated in previous letters, by physicians who decided to work the insurance act at the time the British Medical Association endeavored to prevent this) has held a meeting presided over by Dr. Lauriston Shaw, who resigned from the council of the British Medical Association on the decision not to work the act. The conference expressed satisfaction at the decision of the commissioners that no further wholesale "signing on" of insured persons would be required. Physicians were urged to give the suggested card system a careful and thorough trial. It was resolved that further experience must be gained before it could be decided how many insured persons each physician could treat. The opinion was emphasized that at the termination of the present quarter all moneys for medical benefit should be allotted to the practitioners then on the panel in proportion to the number of insured persons on each physician's list, regard being had to the date at which the physician joined the panel. It was urged that after the first quarter the allotment of persons who had not chosen their physician could be carried out by a sub-committee appointed by the panel practitioners of each district, in accordance with a previously approved scheme. The meeting considered it imperative that medical representatives on insurance committees and on the advisory committee should use their influence to limit the number of officially recognized institutes and dispensaries, and to secure constant supervision in order to insure compliance with the regulations. The provision of medical attendance for persons on holiday and also for those away from their own area while ill or convalescent was discussed. Resolutions was passed that no deductions should be made from the funds at present available for medical benefit for the purpose of meeting any deficiency arising in particular cases, but that a separate and additional fund should be provided by the government for the payment of attendance on migratory insured persons. A resolution was also passed urging practitioners on the panel to consider the for-

mation of a pension fund by means of contributions to be deducted at the source.

Education in Sex Hygiene and Prophylaxis.

Recognition of the pre-eminent responsibility of our profession in the field of preventive medicine has resulted in many lines in a marked awakening of physicians to their obligations as leaders and teachers in the science of keeping well. The essence of preventive medicine is education, and physicians, by virtue of their training, experience and ideals, of right ought to be leaders and teachers. Yet until within a few years their responsibilities were not recognized in the important fields of the prevention of venereal disease and education in the hygiene of sex.

The earlier policy of silence and repression in regard to these matters is fast changing not only on our part but on the part of parents and educators. The sinister menace of venereal disease can hardly be overestimated. The late Dr. Prince A. Morrow, who has done such excellent work in arousing public opinion to the dangers and moral issues of these diseases, states that in the United States annually 770,000 males reach early maturity. If the experience of the past is a safe criterion, at least 60 per cent., or 450,000 of these young men, will at some time become infected with venereal disease, 20 per cent. before the age of 22, 50 per cent. before 25, and over 80 per cent. before they pass 30. This is the morbidity among males reaching 16 in any one year. Each succeeding year adds a similar group to the aggregate.

Syphilis and gonorrhea undoubtedly surpass in prevalence all other infectious diseases combined, and their immediate and disabling effects fall most heavily on the most active and productive period of life. Morrow lays to gonococcus infection alone 80 per cent. of all deaths from inflammatory diseases peculiar to women, 75 per cent. of all special operations on women, and over 60 per cent. of all the work done by gynecologists; 50 per cent. or more of these infected women are left irremediably sterile besides the number whose offspring are still-born, premature, weakly, diseased or mentally defective. These figures may be too high, but probably not.

Considering the terrible ravages of these diseases and their wide prevalence, preventive and prophylactic measures have been woefully inadequate. The community and state assume immense burdens in the care of victims of such conditions as deaf-mutism, mental defectiveness, tabes, general paralysis, blindness and many others. Yet the prevention of a large percentage of these conditions by prevention of syphilis and gonorrhea receives but meager attention. If bubonic plague had but a fractional percentage of the incidence of these diseases all hands would be joined to drive it out. Cholera in a civilized country to-day is no such social and national menace as venereal disease. We appropriate great sums to fight certain epidemic diseases and to maintain a rigid quarantine against them, but we are only now beginning to wage prophylactic warfare against diseases which are as dangerous as any epidemic disease and far more dangerous than many.

There are various points of attack in this problem and various closely related problems, such for instance as prostitution in its various aspects, the proper regulation of divorce, physical and mental requirements for marriage, control of the dissemination of pornographic literature, plays, moving pictures, etc. But there is one point of attack in combating the spread of venereal disease which is justly regarded by many experienced workers as the most vital and strategic, and this is the education of the young. There has been an upheaval in pedagogic and social sentiment in the last few years regarding the question of sex-teaching in home, school and college. Conventional prejudice against such teaching is giving way rapidly, and results are already beginning to appear. Educators are coming to believe that these subjects have a rational and vital place in the educational system.

Members of our profession have an inherent and unique responsibility in furthering this educational work, and every physician can participate either privately or publicly. Modern social sentiment de-

mands a new style of treatment and a new point of view in considering venereal disease, and it behooves the physician to be a leader in this great work.—Journal American Medical Association.

Garbage Reduction.

The idea prevails generally that when garbage is sorted over the articles recovered will be of great value. As a matter of fact, the picking over of rubbish scarcely pays the expense of picking even with the market of a large city at hand and where use is made of the cheapest labor. The picking over of garbage does not pay. Bones and cans are the only two objects it pays to go after.

The use of the reduction method requires that garbage be kept separate. It generally means a long haul. The pure garbage is more offensive than the mixtures commonly disposed of by the destructor method. This method can make use of old and stale garbage. Pig feeding requires fresh garbage and thus, indirectly, is a frequent service promoted. Garboge reduction can make use of stale garbage, and thus, indirectly, is infrequent garbage collection promoted.

Those are the only disadvantages of the method. It can be operated without odor and without nuisance. The soluble odorous gases can be washed out of the smoke and those that are insoluble can be burned. Its great advantage is that next to the pig feeding method it is the most economical.

The greatest value in garbage is its food value. That value is abstracted by pig feeding. The next greatest value is the fat and fertilizer value. That value is abstracted by reduction. In the reduction method the garbage is roasted to drive off the water. The fat is then extracted by percolation with naphtha and the residue is dried and ground into fertilizer stock. The grease is sold for soap and allied purposes and the fertilizer stock is mixed with chemicals to make different brands of commercial fertilizer.

As no city has enough money, as the complaints of poor garbage collection service are constantly met with the plea that there is not money enough, no city of large size is justified in foregoing the profits from garbage reduction. However, a garbage reduction plant is expensive to build. It has seemed to me that somewhere around 150,000 inhabitants was the proper dividing line. A city over that size can afford to, and should, build a garbage reduction works. Below that and say down to 25,000, a garbage destructor is proper. Below 25,000 a garbage crematory of course, these lines are suggestive only.

MEETINGS AND REPORTS

Canadian Public Health Association.

The Third Annual Congress of the Canadian Public Health Association will be held in Regina, Sask., on September 18th, 19th and 20th, 1913. This will be the first occasion on which the members of the Association have met in the West.

At the Congress, held in Toronto last year, communications were read from the city of Regina and the government of Saskatchewan, inviting the members to make Regina their next meeting place. These invitations were unanimously accepted and a hearty welcome will, therefore, be extended to the Association by Saskatchewan's Provincial Government and its capital city.

The Provincial Government, realizing the educational value of such a conference, and the stimulation of interest which it will effect in matters of public health, have decided to bring all the Medical Health Officers of the province, some 200 in number, to the Congress.

There is, therefore, every indication that the attendance will equal, if not surpass, that of the two previous meetings in Montreal and Toronto.

Following the decision to hold the convention in Regina, the Executive Committee of the Association at Ottawa, elected Dr. M. M. Seymour, Commissioner of Public Health for Saskatchewan, convener of the Local Arrangement Committee.

Local committees have already been formed, and are actively engaged in preparing a programme of outstanding strength and interest. Several of the most prominent health authorities of the Do-

minion and the United States will address the convention.

So many important conferences are being held in Regina this year, that Regina is becoming known as the "Convention City" of the West.

This fact is in itself significant, and the local Executive extend a hearty invitation, not only to the public health officials who annually attend the Congress, but to all who are in any way interested in the health of the people, to spend a short vacation in Regina next fall.

Apart from the high standard of instruction and education which the committee are aiming at in the programme, every possible provision will be made for the comfort and entertainment of the visiting guests during their stay in the city.

The Secretary of the Local Arrangements Committee is Mr. R. H. Murray, engineer to the Bureau of Public Health, Regina. The Names of sectional conveners will be announced later.

Panama-Pacific International Exposition.

Dr. R. E. Woodward and Dr. J. D. Long, both of San Francisco, and both members of the United States Public Health Service, have been appointed by Surgeon-General Rupert Blue as Government officials to care for the sanitation of the Panama-Pacific International Exposition, which will be held in San Francisco in 1915.

The fact that the United States Government has taken a part in this important feature of so large an exposition as the Panama-Pacific Exposition promises to be, leads to the hope that the Government will make an exhibit at the Fair of its methods of dealing with the modern problems of public hygiene.

The United States Government has achieved a magnificent work in the building of the Panama Canal—a task which could have been completed only with the aid of perfect sanitation throughout the Canal zone. With two such eminent medical experts at the head of the direction of the sanitation of the World's Fair of 1915, which is to celebrate the completion of the canal, that part of exposition activities which deals with the care of the health of the millions of visitors who will be at San Francisco in 1915 will be an exhibit in itself. But it is hoped that the Government will make a sanitation display in a specially reserved building.

The offices of sanitary directors to the Fair have been created by the Government at the request of the Exposition directors, whose obect is that there shall be on the Fair Grounds every facility for caring for the injured, and for keeping the buildings and grounds in a perfect sanitary condition.

Dr. Long will have charge of the sanitary work, and Dr. Woodward will be in charge of the emergency hospital.

Both doctors have had wide experience in Government work, and have previously held similar positions under the Government.

McGill University, Post Graduate Course, 1913.

The Medical Faculty of McGill University announces that courses for graduate students will be given between May 26th and June 20th, proximo, at the Montreal General and Royal Victoria Hospitals and in the laboratories of the Medical School.

All courses are optional and independent and arranged on the plan of intensive teaching. They are designed with the idea of bringing the post-graduate up to date in any subject he may desire. Where more than one course is desired, arrangements may be made whereby a student may take additional courses. Every effort will be made to avoid over-lapping in point of time of analogous courses.

These courses are open to graduates of Medical Schools in good standing. All post-graduate students are required to register with the Registrar of the Medical Faculty to whom application should be made for further particulars.

Any course along special lines may be arranged for through the Registrar of the Medical Faculty, J. W. Scane, M.D., McGill University, Montreal.

Notable Features on the Program of Hygiene Congress.

The fourth International Congress on School Hygiene, and the first to be held in America, at Buffalo, August 25-30th, according to an announcement of the Executive Committee, will be by far the most elaborate effort yet made in this country toward getting the problem of school hy-

giene before the world. The first International Congress was held at Nuremberg in 1904, the second at London in 1907, the third at Paris in 1910.

The objects of the Buffalo Congress are:

(1) To bring together men and women interested in the health of school children.

(2) To organize a programme of papers and discussions covering the field of school hygiene.

(3) To assemble a school exhibit representing the best that is being done in school hygiene.

(4) To secure a commercial exhibit of practical and educational value to school people.

(5) To publish the proceedings of this Congress and distribute them to each member.

In addition there is a plan on foot to effect a permanent organization for the purpose of carrying out school hygiene reforms in all the individual communities in this country, if not all over the world.

One of the interesting features of the Congress will be the presence of delegates representing the community interest in school hygiene, including those appointed by mayors and governors, by women's clubs, by school boards, boards of health, by mothers' congresses and charity organization societies and boards of trade. Their help is being solicited with a view of organizing the community in a campaign of school hygiene reform.

The Programme Committee announces a programme of two hundred and fifty papers and fifteen symposiums, taking up hygiene from the following points of view:

1. The hygiene of school buildings, grounds, material and up-keep.

2. The hygiene of school administration and schedule.

3. Medical, hygiene and sanitary supervision in schools.

The contributors to the programme make up a notable list of speakers, college presidents and professors; state, city and county commissioners of education; teachers and superintendents of public schools, medical college professors; state, county and city health officers; physicians in private practice, engineers and architects.

Special discussions are being arranged on the following subjects:—

"School Feeding," arranged by the Committee on School Feeding of the American Home Economics Society.

"Oral Hygiene," arranged by National Mouth Hygiene Association.

"Sex Hygiene," arranged by the American Federation of Sex Hygiene.

"Conservation of Vision in School Children," arranged by the Society for the Prevention of blindness. "Health supervisor of University Students," arranged by Dr. Mazyck P. Ravenel, University of Wisconsin.

"School Illumination," arranged by the Society of Illuminating Engineers.

"Relation Between Physical Education and School Hygiene," arranged by the American Physical Education Association.

"Tuberculosis Among School Children," arranged by the Society for the Prevention of Tuberculosis.

"Physical Eductation and College Hygiene," arranged by the Society of Directors of Physical Education in Colleges.

"The Binet-Simon Test," arranged by Prof. Terman, Stanford University.

"The Mentally Defective Child," arranged by Dr. Henry H. Goddard, Vineland, N.J.

Various citizens committees of Buffalo are arranging an elaborate entertainment for the benefit of visiting delegates. There will be receptions and a grand ball, a pageant of school children, and excursion trips to the great industrial plants of Buffalo, and to the scenic wonders of Niagara Falls. The Boy Scouts will act as official guides.

Delegates will attend from every college and university of note in this country, from other leading educational and hygienic institutions and organizations, and from every country in which an active interest is being shown in the welfare of school children, which includes all the leading nations of the world.

The Congress is open to all persons interested in school hygiene upon the payment of a fee of five dollars. Application of membership should be sent to Dr. Thos. A. Storey, College of the City of New York, New York City.

President Wilson has accepted the honorary office of patron of the Congress. The president of the Congress is Mr. Charles W. Eliot, of Harvard University. The vice-presidents are: Dr. William H. Welch, of John Hopkins University, and Dr. Henry P. Walcott, president of the recent International Congress on School Hygiene and Demography, and chairman of the Massachusetts State Board of Health.

BOOK REVIEWS

W. B. Saunders Company, publishers, of Philadelphia and London, have issued another edition (17th) of their handsome illustrated catalogue.

In going through this edition we find it describes nine new books and ten new editions, not described in the previous issue. These new books are of great interest to the medical man, because they treat of subjects being daily discussed in medical circles.

Any physician can get a copy of the Saunders' catalogue by dropping a line to these publishers. A copy should have a place on the desk of every physician, because it is most valuable as a reference work of modern medical literature. Send to Saunders to-day for a copy.

The H. K. Milford Company of Philadelphia has just issued an excellent Bulletin on Typho-Bacterina and Typho-Bacterin mixed. The history, preparation, administration, technique, dosage, reaction, ministration, technique, usage, reaction, contra-indication, duration of immunity and results are concisely dealt with. This company was the first to produce anti-toxins, bacterins and curative serums in the United States and are to-day the largest producers of biological products in the world. They maintain a large staff of scientists and experts with extensive hospital connections, not only to keep in constant touch with the progress of bacteriological science, but also to obtain the various strains of pathogenic micro-organisms so absolutely necessary to the production of effective and polyvalent? serums and bacterins. A copy will be sent on request.

The San Francisco Relief Survey.

Little groups of devoted men and gently-nurtured women sheltered in shacks, cooking their army rations over splintered shingles on a curbstone, gathered about a single candle and conspiring successfully together to raise San Francisco from her ashes—that is the story of the rehabilitation of a stricken community told by a group of social workers in "San Francisco Relief Survey," the latest of the Russell Sage Foundation Publications.

So practical is it that advance copies of the chapters on method of organization at San Francisco, were rushed through the presses and put in the hands of the Red Cross representatives at Omaha, Dayton and Columbus. The Red Cross stands not only for an immediate supply of food, tents, clothing, medicine, but for the rehabilitation—a reasonable lift toward recovery of the standard of living maintained before the disaster. How this was successfully achieved in San Francisco makes a volume of absorbing interest, invaluable as a reference and statistically ample and sound. It is described as the sort of history that one day shall displace the war books.

The chief parts of the volume are written by Dr. Charles J. O'Connor, secretary of the Board of Trustees of Relief and Red Cross Funds; Francis H. McLean, secretary of the American Association of Societies for Organizing Charity; Helen Swett Artieda, secretary of the Busines Committee of the Rehabilitation Committee; Dr. James Marvin Motley of Leland Stanford University; Dr. Jessica Peixotto of the University of California, and Mary Roberts Cooliege of Leland Stanford University.

The book is published for the Russell Sage Foundation by Survey Associates, Inc., New York, at $3.50, post-paid.

When to Send for the Doctor and What to Do Before the Doctor Comes.

By Frieda E. Lippert, M.D., assistant at the psychological clinic, University of Pennsylvania, and Arthur Holmes, Ph.D., assistant professor of psychology and assistant director of the psychological clinic, University of Pennsylvania. With 16 full-page illustrations and frontispiece in color. Philadelphia and London. J. B. Lippincott Company. 1913

An interesting book for the family library, and especially useful to the mother, as upon her watchfulness depends the safety of her offspring. "The female of the species is more deadly than the male." And a book of this character cannot but add to her armamentatarium. The experience of the authors, which has extended over many years, is condensed and placed at the disposal of the reader. By referring to the index any of the milder ailments can be readily consulted.